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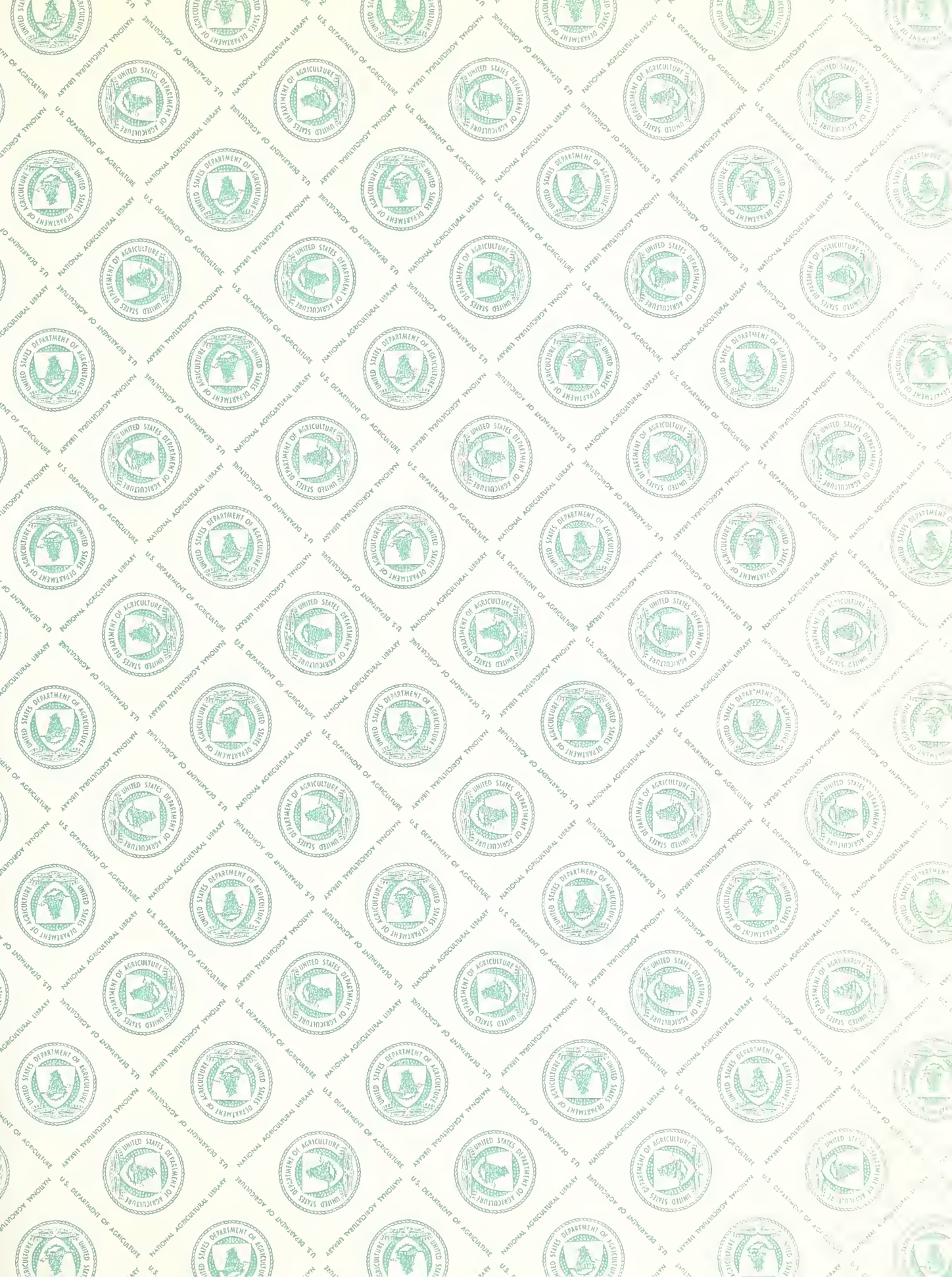






















Reserve

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1968-1969

U.S. DEPARTMENT OF AGRICULTURE

1968 BUDGET

EXPLANATORY NOTE

**FOREST SERVICE**





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## FOREST SERVICE

### Purpose Statement

The Forest Service is responsible for promoting the conservation and wise use of the country's forest and related watershed lands, which comprise one-third of the total land area of the United States. To meet its responsibility the Forest Service engages in three main lines of work, as follows:

1. Management, protection, and development of the National Forests and National Grasslands. The National Forests and National Grasslands are managed under multiple use and for sustained yield. Under these principles natural resources of outdoor recreation, range, timber, watershed, and wildlife are utilized in a planned combination that will best meet the needs of the Nation without impairing the productivity of the land.

Direct as well as generated employment for rural residents contribute to community development, environmental protection and improvement and are additional benefits of management. Gross area within unit boundaries encompasses about 226 million acres in 44 States and Puerto Rico, of which some 187 million acres are under Forest Service administration.

In managing the National Forests, technical forestry is applied to the growing and harvesting of timber crops. Grazing use is managed to obtain proper range conservation along with utilization of the annual growth of forage. Watersheds are managed to regulate stream flow, prevent floods, and provide water for power, irrigation, navigation, and municipalities.

Management includes the development, maintenance, and protection of sites and facilities for the millions of people who visit the National Forests each year for recreation purposes. Emphasis is given to protecting scenic quality while at the same time assuring availability for forest users. Wildlife habitat is managed to provide a suitable land and water environment for both game and non-game wildlife.

Under the multiple use principles most areas are used for, or serve, more than one purpose or objective. For example, about 50% of the area within the National Forests serves five different purposes:

- (a) Timber production
- (b) Watershed protection
- (c) Forage production
- (d) Wildlife production
- (e) Recreation

An additional 28% serves four purposes in varying combinations. Of the remainder, 21% of the total serves three purposes with only 1% of the total reserved exclusively for a single purpose, mainly campgrounds and special use areas, such as summer homesites, pastures, and corrals.





The varied interests which frequently conflict and which must be reconciled, and the vast areas covered, clearly require careful planning and skillful management of the National Forest properties to most effectively serve the Nation's people.

The protection of the National Forests includes the control of forest fires, the control of tree disease and insect epidemics, and the prevention of trespass.

The major development activities of the National Forests are reforestation; timber stand improvement; revegetation; construction of roads, recreational facilities, range and other necessary improvements; and land acquisition and exchanges. Each of these activities contributes to the local economy and in many areas serves to improve incomes of the rural poor.

The economic importance of the National Forests and National Grasslands is evident when it is considered that:

- (a) They produced a cash income in fiscal year 1967 of over \$184.5 million. Approximately 65% of this amount is credited to the general fund in the Federal Treasury (miscellaneous receipts). The remainder is distributed in accordance with special acts of Congress, including 25% to the States or counties in which lands are located, and 10% made available for construction and maintenance of the Forest Service system of roads and trails. In addition to these cash receipts, there are the even greater economic values which result from the processing of end products derived from this utilization of National Forest timber, forage, and minerals. Recreation, wildlife and water result in important economic activity in local, State, and national economies. There are also important intangible values of water, recreation, and wildlife such as the aesthetic enjoyment of natural beauty.
- (b) The area within National Forests boundaries is equivalent to some 10% of the area of the continental United States. Over 40% of this land is within areas now experiencing economic distress. Proper management, development, and utilization of these lands are important factors in permanent improvement of these local economies. Millions of people who live in and near the National Forests are supported in whole or in part through the economic development arising from the forests and their resources. These resources offer the most favorable basis for developing prosperous and vigorous local economies and communities.
- (c) The National Forests supplied 10.9 billion board feet of timber in fiscal year 1967 to the Nation's forest products industries. This is expected to increase to 12.7 billion board feet in 1968. Dependence of the forest products industries on National Forest timber continues to increase as the result of depletion of good quality timber on private lands. In some areas, the dependence of local industry on National Forest timber is almost 100%. Without this supply some small communities could not exist.



- (d) About 7 million head of domestic livestock (including calves and lambs) are grazed on the National Forests and Grasslands. In many local areas this is a major industry. Without such Federal range-lands the economic activity would be drastically curtailed from currently depressed levels.
- (e) These lands provide protection to municipal water supplies for nearly all western cities and towns and many in the East, to irrigation water used on about 20 million acres of western lands, and to many streams with water power developments. They provide flood protection to thousands of acres of rich valley lands and help to prevent more rapid siltation of reservoirs and stream channels. A dependable water supply is an important prerequisite for economic and community development.
- (f) They provide a habitat for a large part of the big game animal population, for birds, for millions of small game animals and furbearers, and for fish. Hunting and fishing constitute an important supplementary source of income for numerous communities, many of which are economically depressed.
- (g) They provide opportunities for healthful outdoor recreation, with a minimum of restrictions. Outdoor recreation is an important source of supplementary income in most areas as well as providing recreational opportunities for local residents. In some relatively depressed communities it becomes even more important.

2. Forestry research. The Forest Service conducts research in the entire field of forestry and the management of forest and related ranges. This includes the growth and harvesting of timber, its protection from fire, insects, and diseases, the protection and management of watersheds, and improved methods for development and management of recreation resources. It conducts studies in forest economics, marketing of forest products, and a survey of the present extent and potential growth and use of the Nation's forest resources. It also conducts research to develop new and improved products from wood, to increase efficiency of utilizing forest products, and to advance the efficiency and mechanization of forestry operations.

The research program has a two-fold objective:

- (a) To backstop the National Forest development program by devising more efficient practices for protecting, managing, and utilizing forest resources.
- (b) To develop new and improved practices that will lead to sounder uses of forests in other public and private ownerships and more efficient and profitable utilization and marketing of forest products.





The Forest Service also cooperates with the Agricultural Research Service of the Department by reviewing and appraising for technical adequacy forest research projects beneficial to the United States which are conducted abroad. These projects are carried out with foreign currencies under Section 104(b)(3) of Public Law 480, as amended, and the dollar expenses of the Forest Service in connection with this work are paid from the appropriation "Forest Protection and Utilization."

Results of research are made available to owners of private forest and rangelands, to public agencies which administer such lands, to forest product industries, and to consumers. Research in the growing, harvesting, processing, and marketing of forest products results in increased competitiveness for forest products. Contribution of the forest resource to the economic and social welfare is made more effective. Research in the management of resources for water, forage, wildlife, and recreation has similar effects as a basis for community development and satisfaction of national demands.

3. Cooperation with State and private forest landowners. The Forest Service cooperates with State agencies and private forest owners to improve management of non-Federal lands. Opportunities exist for greatly increasing the contribution of these lands to social and economic welfare of the Nation as a whole and more particularly to many rural areas which are in need of economic development. Specific programs are designed to:
  - (a) Better protect the 516 million acres of State and privately owned forests and critical watersheds against fires, insects, and diseases.
  - (b) Encourage better forest practices, both for resource conservation and profit, on the 367 million acres of private forest land.
  - (c) Aid in the distribution of planting stock for forests, shelterbelts, and wood lots.
  - (d) Stimulate development and proper management of State, county, and community forests.
  - (e) Assist the harvesters, processors, and marketers of forest products in doing a better job and thereby bring about greater use of forest products and increased income and employment for rural people.
  - (f) The Forest Service also provides assistance to States for tree planting under Section 401 of the Agricultural Act of 1956 (16 USC 568e), through the State forester or equivalent State official, including advice, technical assistance, and financial contributions for increased tree planting and reforestation work, in accordance with plans submitted by the State and approved by the Secretary of Agriculture.



Other work related to forestry includes:

4. Insect and disease control. Activities to suppress and control destructive insects and diseases that threaten timber areas include two types of work carried on jointly by Federal, State, and private agencies:
  - (a) Surveys on forest lands to detect and evaluate infestations of forest insects and infections of tree diseases and determination of protective measures to be taken.
  - (b) Control operations to suppress or eradicate forest insects and diseases, including white pine blister rust.
5. Flood prevention and watershed protection. The Forest Service cooperates with the Soil Conservation Service, appropriate State agencies and the local organizations sponsoring small watershed protection projects initiated under the Watershed Protection and Flood Prevention Act of 1954, as amended, (PL 83-566) in planning and installing forestry and related land resource measures on the watersheds. The Forest Service also collaborates with the Soil Conservation Service, other Federal and State agencies in the conduct of comprehensive river basin studies relating to the development of water and related land resources under authority of PL 89-80 and section 6, PL 83-566. Such studies can form part of the basis of plans for regional and community economic development.

On National Forest lands and on non-Federal forest lands within the watersheds authorized for treatment by the Department of Agriculture under the Flood Control Act of December 22, 1944, the Forest Service plans and installs watershed improvement measures, in the form of minor physical structures, cultural measures, and intensified fire control, to retard runoff and reduce flood water and sediment damage. Work on non-Federal land is carried on in cooperation with the Soil Conservation Service and the appropriate State and local agencies.

Generally, this work is performed with funds allotted to the Forest Service by the Soil Conservation Service. Forest Service funds are used to finance land treatment and certain other measures on small watershed projects located on National Forest lands.

6. Job Corps Conservation Centers. The Forest Service operates 45 Job Corps Conservation Centers on National Forests throughout the United States under agreement with the Office of Economic Opportunity. The Forest Service provides the staffing, administration and logistical support to physically operate and maintain the Centers and conduct the basic education, plan and supervise the recreation, and fully implement the vocational training of corpsmen. The funds for this program are transferred from OEO. There are 32 to 64 permanent staff assigned to each Center based upon enrollee capacity of 112 to 256. Total capacity of all Centers is 8,083 corpsmen and Centers operate on a 24-hour, seven-day week basis. Both human and natural resources are being upgraded through these Conservation Centers, as young men improve their education and job skills in preparation for a more productive life.





7. Timber stand improvement. Funds collected from timber purchasers in connection with timber sales, under authority of the Knutson-Vandenberg Act, make possible some timber stand improvement work on cut-over areas each year looking to the establishment of natural tree growth and protecting it through the critical period of early growth. This work also helps to obtain stocking of trees of desirable species, form and quality. Timber stand improvement in promising young growth not associated with timber sale cuttings is done with funds directly appropriated by Congress.
8. Brush disposal. National Forest timber sale contracts require treatment of debris from cutting operations or deposit of funds to pay for the work. If it is not feasible for the timber purchaser to dispose of the logging slash, which is the case in most sales, it is done by the Forest Service using deposits made by the purchaser. This work is essential because logging slash increases the fire hazard and may contribute to the buildup of insect populations, increase certain disease infestations, and cause damage to stream channels.
9. Land and Water Conservation Fund. This fund, transferred from the appropriation made to the Department of the Interior, finances the acquisition of lands, waters, or interests in lands or waters by the Forest Service as well as certain other Federal agencies. The Act creating the fund from which appropriations are made requires that the lands and waters acquired be primarily of value for outdoor recreation. Means are provided for expanding outdoor recreation opportunities and protecting and improving environmental quality including natural beauty. The fund derives revenues from admission and user fees, sales of surplus real property, and motor boat fuel tax. The first purchase of recreation land made by the Forest Service was on October 19, 1965.
10. Rural fire defense. The Forest Service, as a part of its regular programs, also directs Federal activities and provides technical guidance and training to States concerned with the prevention and control of fires which might be caused by an enemy attack in rural areas of the United States.
11. Timber development organization loans and technical assistance. Under Section 204 of the Appalachian Regional Development Act of 1965, the Forest Service provides technical assistance and loans to timber development organizations to improve development and utilization of timber stands in the Appalachian region. Regional and community development is encouraged and assisted with attendant progress in eliminating rural poverty.



## ORGANIZATIONAL STRUCTURE

The Forest Service maintains its central office in Washington, with program activities decentralized to 9 regional offices, 130 forest supervisors' offices, 805 district rangers' offices, 2 State and private forestry area offices, 8 forest and range experiment stations, the Institute of Tropical Forestry, and the Forest Products Laboratory. Location of headquarters offices:

Regional Offices:	Missoula, Montana	Portland, Oregon
	Denver, Colorado	Atlanta, Georgia
	Albuquerque, New Mexico	Milwaukee, Wisconsin
	Ogden, Utah	Juneau, Alaska
	San Francisco, California	

State and private forestry area offices: Upper Darby, Pennsylvania  
Atlanta, Georgia

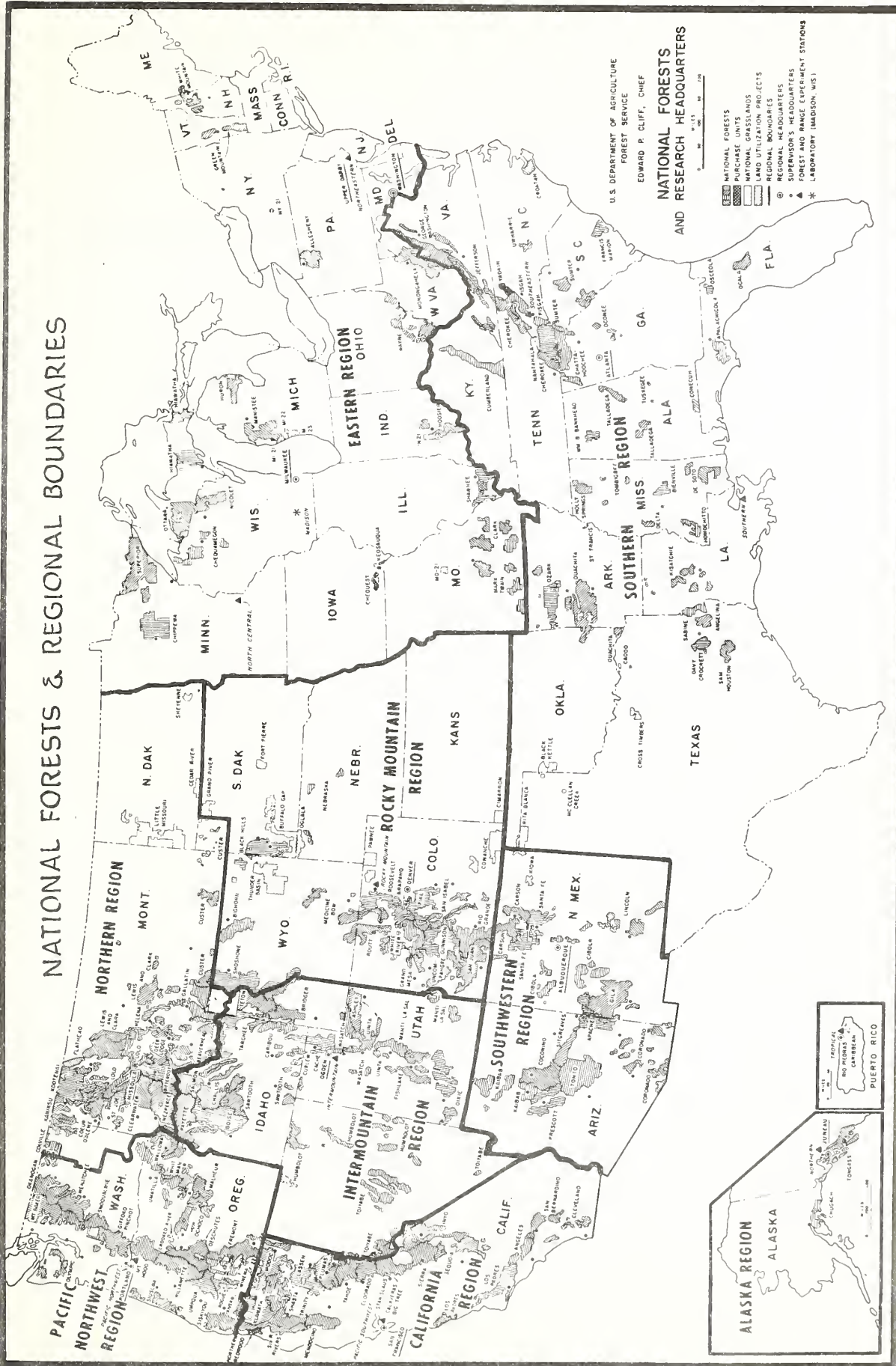
Experiment stations:	Ogden, Utah	Berkeley, California
	St. Paul, Minnesota	Fort Collins, Colorado
	Upper Darby, Pennsylvania	Asheville, North Carolina
	Portland, Oregon	New Orleans, Louisiana

Forest Products Laboratory: Madison, Wisconsin

Institute of Tropical Forestry: Rio Piedras, Puerto Rico



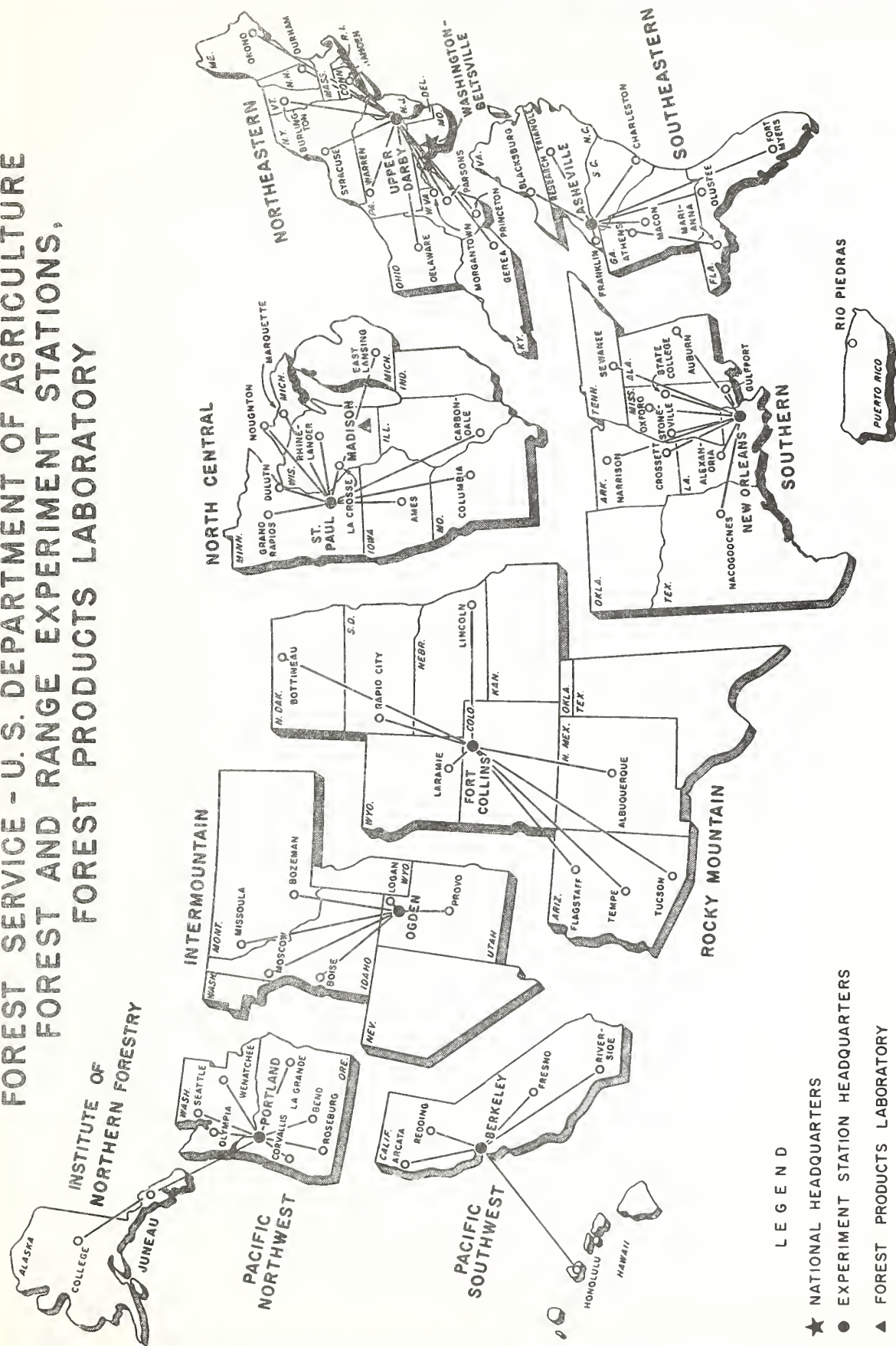
# NATIONAL FORESTS & REGIONAL BOUNDARIES







# FOREST SERVICE - U.S. DEPARTMENT OF AGRICULTURE FOREST AND RANGE EXPERIMENT STATIONS, FOREST PRODUCTS LABORATORY



## LEGEND

- ★ NATIONAL HEADQUARTERS
- EXPERIMENT STATION HEADQUARTERS
- ▲ FOREST PRODUCTS LABORATORY
- RESEARCH PROJECT LOCATIONS

INSTITUTE OF  
TROPICAL FORESTRY



# Summary of Estimated Appropriations and Receipts

Page No.	Item	Available : 1967	Estimated : Available : 1968 e/	Budget : Estimates : 1969	Increase or Decrease :1969 over 1968
	<u>Appropriated Funds</u>				
	Forest protection and utilization:				
25	Forest land management	\$203,388,000	\$185,352,000	\$189,175,000	+\$3,823,000
94	Forest research	38,459,000	41,643,000	40,127,000	-1,516,000
133	State and private forestry cooperation	18,151,000	19,751,000	19,847,000	+96,000
			c/		
	Total, Forest protection and utilization b/	259,998,000	246,746,000	249,149,000	+2,403,000
146	Forest roads and trails a/	101,230,000	110,000,000	91,970,000	-18,030,000
150	Acquisition of lands for National Forests, Special Acts	80,000	80,000	80,000	-
153	Acquisition of lands for Uinta National Forest	300,000	-	-	-
145	Cooperative range improvements	700,000	700,000	700,000	-
158	Assistance to States for tree planting a/	1,000,000	1,000,000	1,000,000	-
	<u>Permanent Appropriations</u>				
167	Expenses, brush disposal a/	9,874,680	10,300,000	10,400,000	+100,000
166	Roads and trails for States, National Forests Fund	16,778,480	17,566,480	18,800,000	+1,233,520
169	Forest fire prevention a/	42,179	45,000	60,000	+15,000
171	Restoration of forest lands and improvements a/	9,543	25,000	25,000	-
172	Payment to Minnesota (Cook, Lake, and St. Louis Counties) from the National Forests Fund	144,815	145,448	145,000	-448
173	Payments to counties, National Grasslands	451,432	450,000	450,000	-
174	Payments to school funds, Arizona and New Mexico	102,931	106,086	110,000	+3,914
175	Payments to States, National Forests Fund	41,942,319	43,912,243	47,020,000	+3,107,757
	Total	432,654,379	431,076,257	419,909,000	-11,167,257
	Deduct permanent appropriations shown above	69,346,379	72,550,257	77,010,000	+4,459,743
	Total (excluding permanent appropriations)	363,308,000	358,526,000	342,899,000	-15,627,000
	<u>Receipts d/</u>				
	Timber sales	172,788,648	185,400,000	189,300,000	+3,900,000
	Grazing and power	3,702,611	3,705,000	3,705,000	-
	Recreation	2,085,901	2,100,000	2,125,000	+25,000
	Land uses	3,426,922	3,420,000	3,430,000	+10,000
	Admission and user fees	659,808	660,000	675,000	+15,000
	National grasslands and land utilization	1,852,968	1,885,000	1,885,000	-
	Total receipts	184,516,858	197,170,000	201,120,000	+3,950,000

(Footnotes on next page)





Summary of Estimated Appropriations and Receipts -- continued

Footnotes

a/ In addition, prior year balances are available.

b/ Includes following: Supplemental Appropriation Act, 1967, PL 89-697 --

Forest land management, sales administration and management, \$2.3 million  
State and private forestry cooperation, general forestry assistance, \$0.2 million

Second Supplemental Appropriation Act, 1967, PL 90-21 --

Increased pay costs, \$3,357,000

Forest land management, fighting forest fires, \$25 million

Excludes following: Space transfers to General Services Administration -- 1967, \$427,000  
1968, \$280,000

Forest land management, fighting forest fires, proposed supplemental for fiscal  
year 1968, \$41 million

c/ Includes \$400,000 transferred from "Timber Development Organization Loans and Technical Assistance"  
(81 Stat. 71).

d/ Amounts include:

	<u>1967</u>	<u>1968</u>	<u>1969</u>
Suspense account, Alaska 1/ .....	\$1,583,204	\$1,500,000	\$1,500,000
Suspense account, O&C Lands 2/ .....	6,837,609	7,000,000	7,000,000

1/ Account established pending settlement of Indian rights on Tongass National Forest, Alaska.

2/ Account established for Oregon and California railroad grant lands, for which receipts are  
transferred to Department of the Interior for distribution under the Acts of August 28, 1937,  
June 24, 1954, and August 3, 1961 (43 USC 1181f-g).



Summary of Estimated Appropriations and Receipts -- continued

e/ The following reductions pursuant to PL 90-218 are included in totals shown:

Forest Protection and Utilization:

Forest land management .....	\$5,217,280
Forest research .....	1,258,000
State and private forestry cooperation .....	2,000
Subtotal .....	<u>6,477,280</u>

Acquisition of lands, Special Acts ..... 50,000

Forest roads and trails (Total reduction in obligations in 1968 is

\$15,035,000; the amount shown here represents the reduction in cash  
required to liquidate those obligations.) .....

6,185,000

Total ..... 12,712,280



13





OFFICE OF ECONOMIC OPPORTUNITY (JOB CORPS)

Transfers to Forest Service

	Available 1967		Estimate 1968		Estimate 1969	
	No. of Permanent Positions	Amount (in thousands)	No. of Permanent Positions	Amount (in thousands)	No. of Permanent Positions	Amount (in thousands)
Center construction and equipment .....	- -	\$3,473	- -	\$1,019	- -	\$6,070
Center operation .....	2,104	41,195	2,489	43,372	2,489	42,880
Program direction and training .....	215	2,094	259	2,643	259	3,551
Total .....	2,319	47,162	2,748	47,034	2,748	52,501

NOTE: FY 1968 and 1969 estimates are based on best information available to the Forest Service as of February 5, 1968.









## FOREST PROTECTION AND UTILIZATION

### Changes in Language

Changes in language of this item are proposed as follows. New language is underscored. Deleted matter is enclosed in brackets.

- 1 . . . . . of which [\$5,000,000] \$4,275,000 for fighting and preventing forest fires and \$1,910,000 for insect and disease control shall be apportioned for use, pursuant to section 3679 of the Revised Statutes, as amended, to the extent necessary under the then existing conditions: Provided, That not more
- 2 than [\$2,480,000] \$1,800,000 of this appropriation may be used for acquisition of land under the Act of March 1, 1911, as amended (16 U.S.C. 513-519): Provided further, That funds appropriated for "Cooperative range improvements", pursuant to section 12 of the Act of April 24, 1950 (16 U.S.C. 580h), may be advanced to this appropriation.

Forest research: For forest research at forest and range experiment stations, the Forest Products Laboratory, or elsewhere, as authorized

- 3 by law; [\$41,257,000, and in addition \$400,000 to be derived by transfer from the appropriation "Timber Development Organization Loans and Technical Assistance", Forest Service] \$40,127,000. . . . .

The first change would provide for funding of fixed costs of specialized firefighting equipment as directed in Senate Report No. 233, May 16, 1967, on Interior and Related Agencies Appropriation Bill, 1968. This would have the effect of reducing the activity Fighting forest fires and increasing the function Forest fire protection under the activity National forest protection and management. There would be no change in the total costs of forest fire protection as a result of this proposal.

The second change is for the purpose of reducing the amount available for acquisition of land under the Act of March 1, 1911, as amended (16 USC 513-519) consistent with the 1969 estimate as explained elsewhere in these justifications.

The third change deletes language authorizing the transfer of \$400,000 in fiscal year 1968 from the appropriation "Timber Development Organization Loans and Technical Assistance", Forest Service to forest research. The 1969 budget estimate includes the funds required for this item next year.



# FOREST PROTECTION AND UTILIZATION

	Forest Land Management	Forest Research	State and Private Forestry Cooperation	Total
Appropriation Act, 1968 .....	a/ \$185,618,000	\$41,257,000	\$19,751,000	\$246,626,000
Transferred from "Timber Development Organi- zation Loans and Technical Assistance" ....	- -	+400,000	- -	+400,000
Transferred to "Operating Expenses, Public Building Service, General Services Adminis- tration" for space rental .....	-266,000	-14,000	- -	-280,000
Proposed transfer between subappropriations for increased pay costs PL 90-206 .....	-67,000		+67,000	
Base for 1969 .....	185,285,000	41,643,000	19,818,000	246,746,000
Budget estimate, 1969 .....	189,175,000	40,127,000	19,847,000	249,149,000
Increase .....	+3,890,000	-1,516,000	+29,000	+2,403,000

a/ In addition, \$700,000 is available by transfer from "Cooperative Range Improvements."

## SUMMARY OF INCREASES AND DECREASES

	1968 Available	1969 Estimate	Increase or decrease Pay Costs	Other
Forest Land Management:				
To increase volume of timber cut and sold to meet increasing requirements for timber for domestic and export needs .....	\$36,657,000	\$38,073,000	+\$353,000	+\$1,063,000
To upgrade present waste treatment systems at recreation sites for water pollution control purposes, and supervise and operate new recreation sites .....	35,132,000	37,566,000	+254,000	+2,180,000
To intensify cooperative wildlife planning with State fish and wildlife agencies .....	4,284,000	4,446,000	+34,000	+128,000



Forest Land Management: (continued)

	<u>1968 Available</u>	<u>1969 Estimate</u>	<u>Increase or decrease Pay Costs</u>	<u>Other</u>
To put better soil and forage cover on depleted land in northern New Mexico, southwestern Colorado, and southern Utah .....	2,895,000	3,124,000	+17,000	+212,000
To help stabilize grazing use by low-income farmers-ranchers and improve range conditions .....	2,796,000	3,668,000	+22,000	+850,000
To finance fixed costs of owning and replacing specialized firefighting equipment .....	26,643,000	27,589,000	+221,000	+725,000
Additional payments to Employees' Compensation Fund .....	759,000	1,118,000	- -	+359,000
For additional monitoring and intelligence and to provide additional experienced leadership and direction in planning and conducting insect and disease control operations on State and private lands .....	11,776,000	11,969,000	+87,000	+106,000
To correct water pollution problems at four critical sites in Arizona, Colorado, and Idaho .....	- -	111,000	- -	+111,000
To transfer from the activity Fighting Forest Fires to the activity National Forest Protection and Management (forest fire protection) amount needed to finance fixed costs of owning and replacing specialized firefighting equipment .....	5,000,000	4,275,000	- -	-725,000
Decrease for construction of Construction and Maintenance of Improvements for Fire and General Purposes (including Communications) .....	9,738,000	8,682,000	+62,000	-1,118,000





Forest Land Management: (continued)

	1968 Available	1969 Estimate	Increase or decrease	
			Pay Costs	Other
All other, including restoration of reduction made pursuant to PL 90-218 .....	47,951,000	48,554,000	+333,000	+270,000
Total, Forest Land Management .....	183,631,000	189,175,000	+1,383,000	+4,161,000
<u>Forest Research:</u>				
To strengthen research on breeding and culture of high-value hardwoods and for research on faster growing, better quality pines .....	8,947,000	9,157,000	+87,000	+123,000
To reduce water pollution by strengthening research on sedimentation .....	3,793,000	3,944,000	+37,000	+114,000
To begin research on changes in vegetation resulting from weather modification .....	1,267,000	1,385,000	+14,000	+104,000
To strengthen research effort on wildlife habitat on east side of Cascade Mountains of Oregon and Washington .....	935,000	989,000	+10,000	+44,000
To initiate additional studies on recreation demands and economic opportunities in Central States, Lake States, and other parts of the East .....	828,000	894,000	+6,000	+60,000
To strengthen two outstanding fire research projects at Missoula, Montana .....	3,077,000	3,323,000	+28,000	+218,000
To strengthen research on parasites and diseases of destructive forest insects, and to develop new techniques for remote sensing of forest insect outbreaks .....	4,201,000	4,323,000	+38,000	+84,000
To strengthen research on causes and preventive measures for dieback and decline diseases of hardwood forest trees in northeastern United States, and tree diseases and viruses causing losses to valuable hardwoods .....	2,341,000	2,472,000	+23,000	+108,000
To expand research on broader use of low-grade hardwoods and wood residues and provide strengthened economic base for rural communities .....	6,999,000	7,341,000	+73,000	+269,000



Forest Research: (continued)

	<u>1968 Available</u>	<u>1969 Estimate</u>	<u>Increase or decrease Pay Costs</u>	<u>Other</u>
To strengthen research on development of improved equipment and engineering systems for harvesting timber and other forest products in the East, and for research to increase productivity of rural woods workers and incomes of small woodlot owners .....	745,000	925,000	+6,000	+174,000
To obtain localized and frequent inventories of available timber supplies and to develop more efficient techniques for inventories of timber and other forest resources .....	2,257,000	2,511,000	+22,000	+232,000
To determine feasibility of industrial expansion in the Southwest and Lake States to benefit small communities and owners of small woodlands, and to develop new markets for wood in urban housing renewal .....	1,511,000	1,649,000	+15,000	+123,000
To develop methods and information for improving income opportunities from forestry in the Ozarks and surrounding areas, and to evaluate costs and benefits of alternative forestry programs in the Intermountain region, South, and Pacific Northwest .....	983,000	1,214,000	+11,000	+220,000
Reduction for nonrecurring research construction projects ....	3,428,000	- -	- -	-3,428,000
Total, Forest Research .....	41,312,000	40,127,000	+370,000	-1,555,000
State and Private Forestry Cooperation .....	19,818,000	19,847,000	+29,000	- -
Balance of 1968 reduction under PL 90-218 lapsing .....	1,985,000	- -	- -	-1,985,000
TOTAL, Forest Protection and Utilization .....	246,746,000	249,149,000	+1,782,000	+621,000





# PROJECT STATEMENT

Page:	Project	1967	1968	1969	Increase or decrease	
No.:			estimate	estimate	Costs	Other
					(PL 90-206)	
	<b>FOREST LAND MANAGEMENT:</b>					
	<b>National Forest protection and management:</b>					
	<b>(1) Timber resource management:</b>					
25	(a) Sales administration and management	\$33,500,316	\$36,657,000	\$38,073,000	+\$353,000	+\$1,063,000
29	(b) Reforestation and stand improvement	16,240,114	15,790,000	15,884,000	+94,000	-
32	(2) Recreation-public use	32,181,829	35,132,000	37,566,000	+254,000	+2,180,000
37	(3) Wildlife habitat management	3,704,055	4,284,000	4,446,000	+34,000	+128,000
	<b>(4) Range resource management:</b>					
41	(a) Management	7,110,200	5,831,000	5,892,000	+61,000	-
44	(b) Revegetation	2,481,644	2,895,000	3,124,000	+17,000	+212,000
45	(c) Improvements	3,182,916	3,496,000	4,368,000	+22,000	+850,000
47	(5) Soil and water management	5,994,443	5,870,000	5,915,000	+45,000	-
53	(6) Mineral claims, leases, and special uses	4,184,681	4,191,000	4,230,000	+39,000	-
57	(7) Land classification, adjustments, and surveys a/	6,196,799	6,210,000	6,534,000	+54,000	+270,000
66	(8) Forest fire protection	24,491,232	26,643,000	27,589,000	+221,000	+725,000
72	(9) Construction and maintenance of improvements for fire and general purposes (including communications)	12,345,243	9,738,000	8,793,000	+62,000	-1,007,000
76	(10) Payments to Employees' Compensation Fund	733,381	759,000	1,118,000	-	+359,000
	Subtotal	152,346,853	157,496,000	163,532,000	+1,256,000	+4,780,000

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Page:	Project	1967	1968	1969	Increased or decrease
No.:			estimate	estimate	Costs : Other
					(PL 90-206) :
:FOREST LAND MANAGEMENT--continued					
	Amount advanced from "Cooperative Range				
	Improvements" .....	-700,000	-700,000	-700,000	- - :
	Subtotal, National Forest protection				
	and management .....	151,646,853	156,796,000	162,832,000	+1,256,000 : +4,780,000
77 :	(11) <u>Water resource development related</u>				
	<u>activities</u> .....	6,697,663	8,259,000	8,299,000	+40,000 : - -
83 :	(12) <u>Fighting forest fires</u> .....	31,547,766	35,000,000	4,275,000	- - : -725,000
86 :	(13) <u>Insect and disease control:</u>				
	(a) White pine blister rust control c/	2,701,382	2,302,000	2,314,000	+12,000 : - -
	(b) Other pest control .....	8,788,951	9,474,000	9,655,000	+75,000 : +106,000
	Subtotal, Insect and disease control	11,490,333	11,776,000	11,969,000	+87,000 : +106,000
90 :	(14) <u>Acquisition of lands, Weeks Act</u> .....	2,479,698	1,800,000	1,800,000	- - : - -
	Total, Forest Land Management .....	203,862,313	183,631,000	189,175,000	+1,383,000 : +4,161,000
:FOREST RESEARCH:					
	<u>Forest and range management research:</u>				
94 :	(15) <u>Timber management research</u> .....	8,215,362	8,947,000	9,157,000	+87,000 : +123,000
98 :	(16) <u>Watershed management research</u> .....	3,558,716	3,793,000	3,944,000	+37,000 : +114,000
101 :	(17) <u>Range management research</u> .....	1,383,098	1,267,000	1,385,000	+14,000 : +104,000
104 :	(18) <u>Wildlife habitat research</u> .....	936,063	935,000	989,000	+10,000 : +44,000
107 :	(19) <u>Forest recreation research</u> .....	543,263	828,000	894,000	+6,000 : +60,000
	Subtotal, Forest and range management research :	14,636,502	15,770,000	16,369,000	+154,000 : +445,000

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Page:	Project	1967	1968	1969	Increase or decrease	
No.:			estimate	estimate	Increased	Costs
					(PL 90-206)	Other
:FOREST RESEARCH--continued						
110:	Forest protection research:					
	(20) Forest fire research .....	2,689,709	3,077,000	3,323,000	+28,000	+218,000
113:	(21) Forest insect research .....	3,845,363	4,201,000	4,323,000	+38,000	+84,000
116:	(22) Forest disease research .....	2,388,952	2,341,000	2,472,000	+23,000	+108,000
	Subtotal, Forest protection research .....	8,924,024	9,619,000	10,118,000	+89,000	+410,000
119:	Forest products and engineering research:					
	(23) Forest products utilization research ..	6,293,651	6,999,000	7,341,000	+73,000	+269,000
122:	(24) Forest engineering research .....	581,052	745,000	925,000	+6,000	+174,000
	Subtotal, Forest products and engineering research .....	6,874,703	7,744,000	8,266,000	+79,000	+443,000
125:	Forest resource economics research:					
	(25) Forest survey .....	2,103,357	2,257,000	2,511,000	+22,000	+232,000
127:	(26) Forest products marketing research ....	1,468,635	1,511,000	1,649,000	+15,000	+123,000
129:	(27) Forest economics research .....	873,521	983,000	1,214,000	+11,000	+220,000
	Subtotal, Forest resource economics research .	4,445,513	4,751,000	5,374,000	+48,000	+575,000
131:	(28) Forest research construction .....	3,276,884	3,428,000	- -	- -	-3,428,000
	Total, Forest Research .....	38,157,626	41,312,000	40,127,000	+370,000	-1,555,000

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Page:	Project	1967	1968	1969	Increase or decrease	
No.:			estimate	estimate	Costs	Other
:					(PL 90-206)	
: STATE AND PRIVATE FORESTRY COOPERATION:						
133:	(29) <u>Cooperation in forest fire control</u> .....	12,804,365	14,357,000	14,367,000	+10,000	-
137:	(30) <u>Cooperation in forest tree planting</u> .....	299,512	302,000	303,000	+1,000	-
140:	(31) <u>Cooperation in forest management and processing</u> .....	3,545,892	3,557,000	3,561,000	+4,000	-
142:	(32) <u>General forestry assistance</u> .....	1,448,814	1,602,000	1,616,000	+14,000	-
:	<u>Total, State and Private Forestry Cooperation</u> ..	18,098,583	19,818,000	19,847,000	+29,000	-
:	Unobligated balance .....	679,653	1,985,000	-	-	-1,985,000
:	Total increased pay and postal costs PL 90-206 ..	(-)	(4,492,000)	(6,701,500)	(+1,807,000)	(+402,500)
:	Total available or estimate .....	260,798,175	246,746,000	249,149,000	+1,782,000	+621,000
:	Transferred from "Timber Development Organization:					
:	Loans and Technical Assistance" .....	-	-400,000			
:	Transferred to "Operating Expenses, Public					
:	Building Service, General Services Adminis-					
:	tration" .....	+426,825	+280,000			
:	Advance from Cooperative Work, Forest Service					
:	(trust fund) for fighting forest fires .....	-800,000	-			
:	Total appropriation .....	260,425,000	246,626,000			

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- a/ Includes allocation to the Department of the Interior, Geological Survey: 1967, \$285,000; 1968, \$291,000;  
1969, \$292,000.
- b/ Excludes proposed supplemental for Forest Land Management, fighting forest fires: \$41,000,000.
- c/ Includes allocation to the Department of the Interior, Bureau of Land Management: 1967, \$352,500;  
1968, \$392,000; 1969, \$397,000.
- d/ Includes allocation to the Department of the Interior, Bureau of Land Management: 1967, \$566,400;  
1968, \$518,000; 1969, \$542,000.









TIMBER RESOURCE MANAGEMENT - Sales administration and management

1967 .....	\$34,463,000
1968 .....	36,657,000
1969 .....	38,073,000
Increase .....	+1,416,000

An increase of \$1,416,000 is needed as follows:

(1) \$1,063,000 primarily to:

- (a) Cover the cost of selling an additional 500 million board feet under the regular program.
- (b) Make inventories and prepare management plans for an additional 100 thousand acres of commercial forest land.
- (c) Prepare and sell an additional 10 million board feet.
- (d) Administer the harvest of an additional 10 million board feet of commercial thinning and salvage material.

(2) \$353,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The total program for fiscal year 1969, compared with 1968, follows:

	<u>1968</u>	<u>1969</u>	<u>Increase or Decrease</u>
		(In thousands)	
<u>Regular program</u>			
Harvest .....	\$24,475	\$25,230	+\$755
Sale preparation .....	8,760	9,443	+683
Advance sale preparation .....	310	- -	-310
<u>Thinning and salvage</u>			
Harvest .....	695	740	+45
Sale preparation .....	770	800	+30
<u>Timber inventories and management</u>			
Plans .....	<u>1,647</u>	<u>1,860</u>	<u>+213</u>
Total .....	36,657	38,073	+1,416

Additional workload and cost information for fiscal 1967 through 1969 follows:



		Project (1a)		
		<u>1967</u>	<u>1968</u>	<u>1969</u>
(1)	<u>Regular program</u>			
	(a) <u>Harvest</u>			
	Million board feet .....	10,851	12,500	12,500
	Cost per thousand board feet .....	\$2.21	\$1.96	\$2.02
	Total cost (in thousands) .....	\$23,955	\$24,475	\$25,230
	(b) <u>Sale preparation</u>			
	Million board feet .....	11,655	12,000	12,500
	Cost per thousand board feet .....	\$0.74	\$0.73	\$0.76
	Total cost (in thousands) .....	\$8,615	\$8,760	\$9,443
	(c) <u>Advance sale preparation</u>			
	Million board feet .....	2,200	1,500	- -
	Cost per thousand board feet .....	\$0.13	\$0.21	- -
	Total cost (in thousands) .....	\$275	\$310	- -
(2)	<u>Thinning and salvage</u>			
	(a) <u>Harvest</u>			
	Million board feet .....	- -	210	220
	Cost per thousand board feet .....	- -	\$3.31	\$3.36
	Total cost (in thousands) .....	- -	\$695	\$740
	(b) <u>Sale preparation</u>			
	Million board feet .....	- -	280	290
	Cost per thousand board feet .....	- -	\$2.75	\$2.76
	Total cost (in thousands) .....	- -	\$770	\$800
(3)	<u>Timber inventories and management plans</u>			
	Thousands of acres .....	7,987	9,500	9,600
	Cost per acre .....	\$0.20	\$0.17	\$0.19
	Total cost (in thousands) .....	\$1,618	\$1,647	\$1,860

The proposed program is necessary to meet the increasing demands for timber. The Forest Service is committed to using every means available to maintain timber harvesting at allowable cut levels and to accelerate offerings of timber not normally included under allowable cut levels (thinnings and



salvage material). The increases proposed provide additional rural employment and broader base for local community development. The major portion of the increase will be used to place more timber on the market which should help alleviate inflationary pressures on stumpage prices.

It is planned to sell 12.5 billion board feet of regular material and 290 million board feet of thinning and salvage material, or a total of 12.79 billion board feet. This will cost \$10,243,000, or \$713,000 over fiscal year 1968.

It is planned to harvest 12.5 billion board feet of regular material and 220 million board feet of thinning and salvage material, or a total of 12.72 billion board feet. This will cost \$25,970,000, or \$800,000 over fiscal year 1968.

Returns to the Treasury from the timber harvest program continue to increase. The following tabulation shows receipts from the harvest of National Forest timber:

<u>Fiscal Year</u>	<u>Receipts (In millions)</u>
1963	\$117.4
1964	128.0
1965	138.8
1966	164.9
1967	172.8
1968	185.4 (estimated)
1969	189.3 (estimated)

Based on the above tabulation, each dollar of program cost for 1969 will return over \$4.97 to the United States Treasury in the form of timber receipts.

The program for timber inventories and management plans is at a somewhat higher level than for fiscal year 1968, or \$1,800,000—up \$184,000 over fiscal year 1968. This work is essential in establishing the allowable annual cut and is basic to the timber harvest program. Working circles are inventoried, and new management plans developed on the basis of current inventory data at about decade intervals. Program costs vary from year to year because of variation in the size of working circles involved. After 6 years of stability rising costs have finally resulted in slightly higher unit costs, despite improvement in techniques.

#### Examples of Recent Accomplishments

Sales administration. Volume cut during fiscal year 1967 amounted to 10.9 billion board feet—down 1.2 billion board feet from fiscal year 1966. Despite the lower harvest volume, receipts from timber set a new high, with



\$172.8 million deposited in the Treasury—up \$7.9 million over the preceding year. A total of 11.6 billion board feet of timber was sold on the National Forests in fiscal year 1967, up 300 million board feet over the past year.

Progress in meeting the sustained yield allowable cut objectives during the past five years is shown in the following table. A comparison between the volume actually cut and the annual allowable cut is shown below:

<u>Fiscal Year</u>	<u>Annual Allowable Cut <sup>1/</sup></u>	<u>Actual Volume Cut</u>	<u>Percent of Allowable Cut Harvested</u>	<u>Actual Volume Sold</u>	<u>Percent of Allowable Cut Sold</u>
(Volumes in billions of board feet)					
1963	11.3	10.0	88%	12.2	108%
1964	12.0	11.0	92	11.7	98
1965	12.0	11.2	93	11.5	96
1966	12.4	12.1	97	11.3	91
1967	12.2	10.9	89	11.6	95

<sup>1/</sup> As of January 1 preceding the fiscal year. Annual allowable cut includes only sawtimber for National Forests west of the Great Plains and in Alaska, and sawtimber and convertible products for National Forests in the eastern half of the United States.





TIMBER RESOURCE MANAGEMENT - Reforestation and timber stand improvement

1967 .....	\$17,640,000
1968 .....	15,790,000
1969 .....	15,884,000
Increase .....	+94,000

An increase of \$94,000 is proposed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

A recent study projects an annual demand of 21.6 billion cubic feet of timber in the year 2000. Estimated currently sustainable yield is 18.0 billion cubic feet, leaving a predicted annual deficit of 3.6 billion cubic feet. This deficit is expected to lead to a more than 25% increase in timber product prices, and an annual cost to the economy of several billion dollars. The reforestation and timber stand improvement program is for the purpose of reducing this growth deficit by increasing growth on the National Forests.

Proposed programing of funds currently available in fiscal year 1969 and comparison with 1968 and 1967 follows:

	<u>1967</u>		<u>1968 (estimate)</u>		<u>1969 (estimate)</u>	
		<u>Acres</u>		<u>Acres</u>		<u>Acres</u>
Reforestation	\$10,700,000	115,981	\$10,036,000	112,400	\$10,208,000	109,400
Timber stand improvement .	5,525,000	194,033	4,369,000	147,000	4,247,000	125,000
Genetic tree improvement .	910,000	- -	1,025,000	- -	1,123,000	- -
Nursery development .....	505,000	- -	360,000	- -	306,000	- -
Total .....	17,640,000	310,014	15,790,000	259,400	15,884,000	234,400

The 109,400 acres to be reforested will be done by planting or seeding deforested or brush covered land capable of producing high quality timber at a good growth rate. Average annual growth increase from this acreage is estimated at 11.8 million cubic feet (approximately 66.7 million board feet) valued at \$1,311,900.

The 125,000 acres to be treated by timber stand improvement measures will consist of releasing young conifers from overtopping brush and of thinning overcrowded stagnated young stands of both hardwoods and conifers in order to increase the growth of the highest quality trees. The average annual growth increase from this acreage is estimated at 6.6 million cubic feet (approximately 35.3 million board feet) valued at \$853,750.



Both the reforestation and timber stand improvement will be done on National Forest land, which will produce internal rates of return on the timber-growing investment ranging from 6% to 14.4%, according to a recent economic analysis.

It is also estimated that the program will have the added benefit of providing about 376,500 man-days of employment to semi-skilled workers, generally in low-income rural areas.

The genetic tree improvement program is for the purpose of producing improved tree seed for project reforestation work. In addition to extensive work with conifers, the 1969 program includes establishment of orchards of genetically superior trees of important hardwood species, such as black walnut and cherry for the production of improved seed.

The \$306,000 for nursery development is for modernization of seedling production and seed extraction facilities for more efficient nursery operation.

#### Examples of Recent Accomplishments

Reforestation. An area of 115,981 acres of National Forest land was reforested with appropriated funds in 1967 -- 89,187 by planting and 26,794 by seeding. In addition, 6,097 acres were reforested by cultivating the ground to promote regeneration from natural seed-fall.

Other reforestation accomplishments in 1967 include:

- (1) Procurement of 78,439 pounds of clean tree seed. 25,992 pounds were purchased from commercial seed dealers, and 52,447 pounds were processed in Forest Service seed extractories.
- (2) Production of 106 million trees in 14 Forest Service nurseries.
- (3) Establishment of an additional 299 acres of seed production areas and 185 acres of seed orchards. A black walnut seed production area was established in Indiana and several hundred superior black cherry trees in Pennsylvania and West Virginia were selected for testing and possible use in seed orchards.

In addition to reforestation accomplished with appropriated funds, the following work was done with funds collected under authority of the Knutson-Vandenberg Act:

	<u>Acres</u>
Reforested by tree planting .....	114,840
Reforested by seeding .....	23,396
Reforested by ground cultivation to regenerate from natural seed fall .....	<u>27,580</u>
Total .....	165,816



The total area of National Forest land reforested in 1967 with appropriated funds and Knutson-Vandenberg funds by planting, seeding, and natural regeneration on prepared sites was 287,894 acres, a slight increase over the previous year's record.

Timber stand improvement. An area of 194,033 acres was treated by the following cultural measures with appropriated funds in 1967:

	<u>Acres</u>
Thinning .....	86,081
Release .....	107,241
Pruning .....	711

An additional 69,250 acres was lightly burned over by controlled fires in the southern pine types to increase timber growth and quality by reducing competition of understory brush and destroying longleaf pine needles infected with brownspot disease.

Timber stand improvement work was also done for the same purposes with Knutson-Vandenberg funds on the following acreages in 1967:

	<u>Acres</u>
Thinning .....	91,665
Release .....	130,933
Pruning .....	3,259

In addition, 76,690 acres in the southern pine type were treated by controlled burning with Knutson-Vandenberg funds.





RECREATION-PUBLIC USE

1967 .....	\$31,139,000
1968 .....	35,132,000
1969 .....	37,566,000
Increase .....	+2,434,000

An increase of \$2,434,000 is needed as follows:

- (1) \$2,180,000 to: (a) Upgrade waste treatment systems and (b) supervise the increasing use, maintain, and operate 201 new recreation sites with an additional capacity to accommodate 25,365 persons at one time at the beginning of fiscal year 1969.
- (2) \$254,000 to provide for the full year costs in fiscal year 1969 of the pay increase and for postage costs pursuant to PL 90-206.

The following tabulation shows by major program segments the total planned financing for fiscal year 1969 as compared with fiscal years 1967 and 1968 (in thousands):

<u>Operation and maintenance:</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>Changes between 1968 and 1969</u>
Cleanup of undeveloped areas ....	\$308	\$1,285	\$1,645	+\$360
Cleanup of developed sites .....	9,055	10,343	10,798	+455
Maintenance of developed sites ..	7,740	8,822	9,155	+333
Administration and cleanup of wilderness .....	604	1,032	1,954	+922
Administration and cleanup of National Recreation Areas .....	300	408	1,337	+929
Administration of Visitor Information Services .....	1,210	1,666	1,850	+184
<u>Development:</u>				
Quality improvement of existing facilities and new construction	11,922	10,352	7,155	-3,197
Water pollution abatement .....	- -	1,224	3,672	+2,448
Total .....	31,139	35,132	37,566	+2,434



As indicated above, a decrease was necessary in development items to provide for adequate operation and maintenance of existing facilities. Steadily increasing use of such facilities places serious soil and vegetation impacts at both developed and undeveloped sites. This heavy use requires more intensive cleanup, maintenance, and people control to assure visitors a valuable recreation experience and to protect the resource. Upgrading of existing waste treatment plants is in response to Executive Order 11258 dated November 17, 1965, and will not provide additional capacity. Amounts shown for development include projects of national significance, such as National Recreation Areas, Blanchard Springs Cavern in Arkansas, Boundary Waters Canoe Area in Minnesota, and Sylvania Tract in Michigan.

#### Operation and Maintenance

Cleanup and administering undeveloped areas, roadsides, and trails -- \$1,645,000. With an estimated 105,000,000 visitor-days of dispersed use in fiscal year 1969 and an increasing 253,000 visitor-days by 1973, the task of administering this use and cleanup on undeveloped areas will continue to increase. An adjustment of \$360,000 has been made to handle the additional cleanup cost necessitated by increased use and to provide the minimum control and sanitation facilities at undeveloped areas where concentrated public recreation use occurs in absence of developed facilities to accommodate the demand.

Accelerated use of undeveloped areas for the more common activities such as hiking, nature studies, canoeing, and for new activities such as snow-play and snowmobile use will require more supervision and cleanup at roadside, streamside, and trailside areas to prevent pollution of water and to maintain attractive landscapes unspoiled by trash and litter along travel routes.

Administration and cleanup of developed recreation sites -- \$10,798,000. At the beginning of fiscal year 1969, there is estimated to be developed capacity at observation, swimming, boating, camping, and picnic sites exclusive of Wilderness and National Recreation Areas to accommodate 630,100 people at one time. Facilities to accommodate additional 25,400 persons at one time will have been developed during fiscal year 1968. An adjustment of \$455,000 has been made to administer the use and handle the cleanup generated by this additional capacity.

The more intensive use being made of facility, the charging of recreation fees at many developed sites, and the national emphasis being placed on sanitation and pollution control add up to the urgent necessity for higher standards of cleanup than were necessary or acceptable in the past. Intensive use on developed sites is estimated to be 78 million visitor-days in fiscal year 1969 and, based on present experience, will expand to 113 million visitor-days by 1973. Increased financing is necessary to provide for adequate cleanup on existing sites and the necessarily added new sites and facilities.



Maintenance of developed sites -- \$9,155,000. Continually increasing use, much of which is beyond design capacity, is causing exceptional wear and tear on facilities and the sites on which they are located. An adjustment of \$333,000 has been made to provide the additional maintenance needed on older facilities to keep them in a usable, safe condition in an effort to meet the increased use and resulting impact.

Administration and cleanup of wilderness -- \$1,954,000. An adjustment of \$922,000 has been made to meet the increasing demand created by the upsurge in wilderness use during the past few years. These national treasures must be administered so as to preserve their wilderness resource for the use and enjoyment of future generations. This includes the distribution of visitors, management of packer stock, providing information for the public, maintenance of plans, and cleanup after users.

In the years immediately ahead, much more effort will be directed to studying and reporting to the President and Congress on Primitive Areas under the Wilderness Act and preparing long-range management plans essential to proper management of the area.

Administration and cleanup of National Recreation Areas -- \$1,337,000. National Recreation Areas have been designated by Congress as areas with special recreation significance. In fiscal year 1969, it is estimated that there will be 3.4 million visitor-days use at National Recreation Areas. On the basis of experience to date, this figure will reach 13.3 million visitor-days by fiscal year 1973. By their very nature, these areas will receive more intensive use than the normal National Forest areas.

An adjustment of \$929,000 has been made to supervise the increasing use, operate and maintain the facilities, and provide the necessary services for the public.

By virtue of their specific legislative designation a higher-quality recreation experience is required at a National Recreation Area. Thus, these special sites and the facilities on them must be maintained and administered at a higher-than-average level.

Administration of Visitor Information Service -- \$1,850,000. Three new major visitor centers--Cape Perpetua, Oregon; Earthquake, Montana; and Cranberry, West Virginia--have been constructed in fiscal year 1968 for public service. In addition, 65 interpretive trails plus vista points, and amphitheaters for conservation interpretation programs have been constructed. Heavy visitation to existing visitor information service facilities have increased the wear and tear on the improvements. Part of the overuse at existing sites will overflow to some of the newly developed facilities.



The audio-visual and visitor participation equipment must be maintained in good operating condition to afford meaningful interpretation for the visitor seeking a complete recreation experience. An adjustment of \$184,000 has been made to operate and administer the existing and newly constructed facilities needed to provide better understanding of our natural resources.

### Development

Quality improvement of existing facilities and new construction--\$7,155,000. In addition to providing for quality improvement of 200 existing sites, including replacement of inadequate and worn out water systems, toilets, and refuse handling facilities, an additional 115 new sites with a capacity to accommodate 10,700 people at one time will be developed. These new facilities will provide some relief at existing sites where users have been forced to double up or crowd in between units at undeveloped areas where concentrated overflow use is causing vegetative loss and soil erosion. Many of these new sites will be constructed in areas of national significance, such as National Recreation Areas, the newly acquired Sylvania Tract, and the Boundary Waters Canoe Area.

Development work will also contribute to the objective of alleviating rural poverty through direct employment of the unemployed or underemployed in rural areas and through the longer range and more general uplift of the rural economy resulting from the attraction of recreation visitors.

As indicated above, an adjustment of \$3,197,000 has been made in this activity to provide for adequate operation and maintenance of existing facilities.

Pollution abatement -- \$3,672,000. An adjustment of \$2,448,000 has been made to allow for the correction of pollution problems at 25 existing sites which were identified by the Federal Water Pollution Control Administration.

### Examples of Recent Accomplishments

The National Forest System continued to be extremely popular for outdoor recreation in calendar year 1966, with an estimated total of 150,728,900 visitor-days being reported. The visitor-day unit is now used by all Federal agencies responsible for administration of recreation use on public lands. Although there is no predictable relationship between these quantities and past estimates which were based on different concepts, evidence indicates that the rate of increasing demand continues unabated.

Camping and picnicking were the most popular activities in 1966 and accounted for 47.5 million visitor-days. Recreation travel was next in popularity with





31.3 million visitor-days and hunting and fishing totaled 27.8 million visitor-days. Winter sports of all kinds amounted to 5.2 million visitor-days of which 4.0 million was skiing use. Boating accounted for 4.0 million; swimming, waterskiing and other water sports 3.7 million for a total of 7.7 million visitor-days of water-oriented recreation use other than fishing.

Activities associated with resorts, organization camps, and recreation residences accounted for a record 18.5 million visitor-days.



WILDLIFE HABITAT MANAGEMENT

1967 .....	\$3,971,000
1968 .....	4,284,000
1969 .....	4,446,000
Increase .....	+162,000

An increase of \$162,000 is needed as follows:

- (1) \$128,000 to intensify the planning of joint development projects with the State fish and wildlife agencies.
- (2) \$34,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

During the past fiscal year the States spent more than one million dollars on cooperative wildlife habitat improvement work on the National Forests. This amounted to 46% of the total wildlife improvement work completed in that year. This cooperative planning with the States is an important wildlife recurrent workload which results in habitat improvement through State participation.

The wildlife management program for the National Forests is oriented to the protection and development of habitat for optimum wildlife and fish production. The use and public enjoyment of all forms of wildlife are also emphasized.

Other resource activities usually have direct impacts on wildlife and fish habitat. Damage or destruction of habitat often result from natural or human use causes. Rehabilitating habitat, developing additional habitat, and taking special management measures in preventing damage to habitat on both land and water areas are important parts of this total program.

The wildlife program may be divided into two broad groupings. The planned level of financing for fiscal year 1969, as compared with 1967 and 1968, is as follows:

	<u>FY 1967</u>	<u>FY 1968</u>	<u>FY 1969</u>
	(in thousands)		
Recurrent work .....	\$2,957	\$3,147	\$3,494
Development of wildlife habitat			
(both land and aquatic) .....	<u>1,014</u>	<u>1,137</u>	<u>952</u>
Totals .....	3,971	4,284	4,446



Recurrent work is the heart of the wildlife program which involves relatively fixed annual costs in relation to other resource uses and programs. It includes:

- (1) Coordinating the needs of wildlife in all other resource uses and activities. Wildlife biologists are assigned to all regional offices and a number of the National Forests to give technical guidance to this coordination activity. Timber cutting, livestock grazing, road building, and forest insect control are some of the activities that often need adjusting to make them compatible with wildlife needs. The intensity of coordination determines the degree to which wildlife values are protected or enhanced. The control of animal damage to other resources also requires intensive coordination.
- (2) Cooperating with State fish and wildlife agencies, the agencies responsible for protecting wildlife and regulating the harvest of game populations, is an important part of the Forest Service wildlife program. Habitat management on the National Forests is essential to the success of State fish and game programs because habitat and wildlife populations cannot be managed independently of each other. The States contribute a substantial share of the cost of habitat and fishing water developments. In 1967 they spent more than \$1 million in these types of work.
- (3) Evaluating wildlife habitat and preparing or revising management plans are a continuing activity which is basic to an effective wildlife program.
- (4) Maintaining habitat improvements already in place is a recurring job that normally takes precedence over new development work. The States share in this work under terms of cooperative agreements.
- (5) Program administration and direction is also included under recurrent work.

Development of wildlife habitat includes a wide variety of activities designed to increase wildlife and fish production for use and enjoyment of the public. For land-based developments, this includes, for example:

- (1) Seeding forage plants.
- (2) Developing wildlife openings in timber.
- (3) Improving wetlands for waterfowl.
- (4) Installing various types of watering facilities to fit the needs of local wildlife species.





In fiscal year 1968 the 50,000-acre Chippewa wetland development project was initiated in Minnesota. This involves construction of potholes, shallow lakes, artificial nesting facilities, and management of vegetative types for the benefit of waterfowl and aquatic wildlife. The work has wide public support and is based on a development plan prepared jointly with the State and the Bureau of Sport Fisheries and Wildlife. Development will continue in fiscal year 1969 at about the same level as 1968. A number of direct benefits to the local rural economy and low income rural residents, including wild rice production, will accrue from this project.

Much of the habitat improvement work on eastern National Forests is directed to the development and maintenance of wildlife openings as a primary food source for deer and turkeys. In the northeastern forests, grouse habitat and hunter walkway development is a major activity.

The development of water holes and, in the arid regions, the more sophisticated "guzzlers" or water catchment devices to expand usable wildlife range receives priority in many parts of the country. (See Figure 3-a, bottom.)

In the case of fishing water developments, new work is oriented to restoration of fish habitat by creating additional pools and cover for fish, building new fishing lakes, stabilizing streambanks, and controlling sedimentation of streambeds. (See Figures 3-a (top) and 3-b.)

In the arid southwest, large fishing lakes are developed cooperatively with the States to increase fishing opportunities. The limited trout streams are developed to near their fish production capability wherever possible on a priority basis.

In Alaska, much of the fishery effort goes into stream barrier removals (fish ladder construction) to extend spawning waters for salmon and steelhead production. This practice results in high economic returns for the money invested. This work is done in cooperation with the State and it benefits local economy through increased fishing for both sport and commercial use.

On the National Forests of the Southern Appalachian region there is great demand for the limited trout waters now present. Intensive management and development is directed to the maintenance of water quality that will permit continued production of trout for public enjoyment.

About 25 species of wildlife classed as endangered, rare, or unique to the area have been identified on the National Forests and are receiving special management attention.



The Importance of Fish and Wildlife Resources

In calendar year 1966 the estimated sportsman use of National Forests amounted to:

Hunting visitor-days .....	13,100,000
Fishing visitor-days .....	14,700,000

(The visitor-day is a unit of measure amounting to 12 hours)

Additionally, there were an estimated 9.5 million days of use by those whose primary aim was to observe or photograph wildlife in a natural setting.

Public use and enjoyment of wildlife resources will continue to grow. This use is highly congested in the vicinity of population centers.

Hunting, fishing, and non-consumptive uses of wildlife take place in rural areas and stimulate business in local communities. Local economy is often geared to the hunting and fishing traffic. An estimated 50% of the habitat development work will be done in the lower third of the counties, ranked in order of family welfare and income level.

All actions taken to protect wildlife values and to develop wildlife resources are in direct support of natural beauty. Wildlife itself is an essential part of the natural landscape.

Examples of habitat improvements in fiscal year 1967:

Development of wildlife food and cover ....	95,000 acres
Wildlife water developments .....	618 units
Wetland improvements for waterfowl .....	711 acres
New fishing lakes .....	590 units



## WILDLIFE HABITAT IMPROVEMENT



A low-cost stream improvement check dam that provides cover for trout and improves fishing.



An example of a wildlife watering facility (bird guzzler) used in arid regions to increase quail and other wildlife production.





RANGE RESOURCE MANAGEMENT

1967 .....	\$5,527,000
1968 .....	5,831,000
1969 .....	5,892,000
Increase .....	+61,000

An increase of \$61,000 is proposed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The overall range management activity of the Forest Service is broken down into three programs:

- (1) Range resource management.
- (2) Range revegetation.
- (3) Range improvements.

The basic mission of the overall program is conservation and development of the 106 million acre range environment in the National Forest System so it can be utilized to provide goods and services of sufficient quality for the American people. Corollary to this basic mission is the promotion of sound principles of conservation and management on 66 million acres of associated private lands. The activity also fulfills the responsibility of the Forest Service to provide leadership in the management and development of the Nation's forest ranges.

Benefits to the public are both market and non-market. The program contributes directly to a segment of the American economy which is totally rural-oriented. It contributes in a major way to production of wildlife, control of water runoff from high-producing watersheds, and yields non-market benefits of aesthetic uplift and physical improvement of rangeland visitors.

The economic benefits of the program, although modest in the overall economy of the Nation, are nevertheless significant to residents of many rural communities. (See Figure 4-a.) For many of the 20,000 farmers and ranchers who hold permits on National Forest System range, these Federal lands provide grazing that their private land cannot furnish. Without the Federal lands, the private land in many cases could not sustain a livestock operation and would go out of production.

Traditionally, the program is oriented to benefit the small farmer-rancher. In 1909, about 62% of the grazing permits issued by the Forest Service were for less than 40 head of cattle. In 1965, about 60% were for 40 head or less. Only 6% to 8% of all cattle permits have been for more than 200 head. This corresponds closely with distribution of permits to ranchers by income categories. Over 70% of the cattle permittees in the western States are in the \$3,000 or less net annual income category with an average net income of \$1,075. (See Figure 4-a.)





During the 1969 budget year it is planned to direct the program toward those rural areas which are in economic distress. This will be carried out to the extent that it will not seriously disrupt the basic resource conservation mission elsewhere. It is hoped that this emphasis will provide both immediate economic stimulation through expenditure of public funds and long lasting benefits from an augmented public range resource in those rural areas.

The range resource management program is concerned with:

- (1) Range resource inventory.
- (2) Formulation and execution of range management and development plans.
- (3) Adjudication of the range resource and regulation of its use.

The program requires the equivalent of 600 man-years of employment annually, most of it professional. As the demand for the various resources of the range environment increases, management is necessarily intensified and the manpower requirement goes up.

Major tasks to be accomplished during the budget year are:

- (1) Analysis of the resource situation on 600 range allotments containing 5.4 million acres. This involves sampling of vegetation, soil, and other factors of the total environment. Information on current productivity and potential is analyzed and evaluated. Based on this analysis, a plan of management is prepared for each allotment designed to optimize soil and vegetative conditions and to produce maximum benefits to the public.
- (2) Continue to intensively manage the 4,000 range allotments which have reached the level where planning, management, and range improvement are paying off in increased production of forage and other resources.
- (3) Regulate the grazing use on and extensively manage the 7,670 other range allotments in the National Forest System with the minimum objective of protecting the soil and vegetation against damage while attempting to sustain present levels of grazing use.
- (4) Develop a new grazing fee structure for the National Forests of the western States designed to provide a more equitable charge to the user and a fair return to the Government. Conduct studies in the National Grasslands of the Plain States and the National Forests of southeastern United States for development of fee structures for those parts of the country.



Examples of Recent and Projected Accomplishments

	<u>FY 1967</u>	<u>FY 1968</u>	<u>FY 1969</u>
Analysis and planning job brought to completion (No. allotments) .....	945	950	950
Allotments intensively managed .....	4,000	4,000	4,650
Allotments extensively managed .....	7,670	7,670	7,020
Number of 10-year term grazing permits administered .....	20,000	20,000	20,000
Animal unit months use (millions):			
Livestock .....	11.1	11.1	11.1
Big game .....	5.3	5.4	5.4

An economic model was developed for use in determining the value of grazing use on public lands.

A data collection survey was carried out to estimate grazing values on public lands. 10,000 ranchers were interviewed throughout 98 National Forests, 19 National Grasslands, and 55 Bureau of Land Management Districts within 17 western States.

A study was conducted to determine the impacts of alternative fee adjustments. The National Forests of Utah were used as the pilot area.



# RANGE RESOURCE MANAGEMENT BENEFITS AMERICA'S RURAL COMMUNITIES

## Outputs from National Forest System ranges in 17 Western States:

Annual gross value of livestock products	\$ 86.7 million
Annual net value of livestock products	37.8 million
Capitalized net value to 15,000 permittee ranches @ 5%	756.7 million

## Benefits to the average permittee ranch:

Annual net value of livestock products per average permittee ranch	\$ 2.5 thousand
Capitalized net value to the average permittee ranch	50.5 thousand

## Proportion of Forest Service Grazing Permittees by Income Category in 17 Western States (Livestock production only):

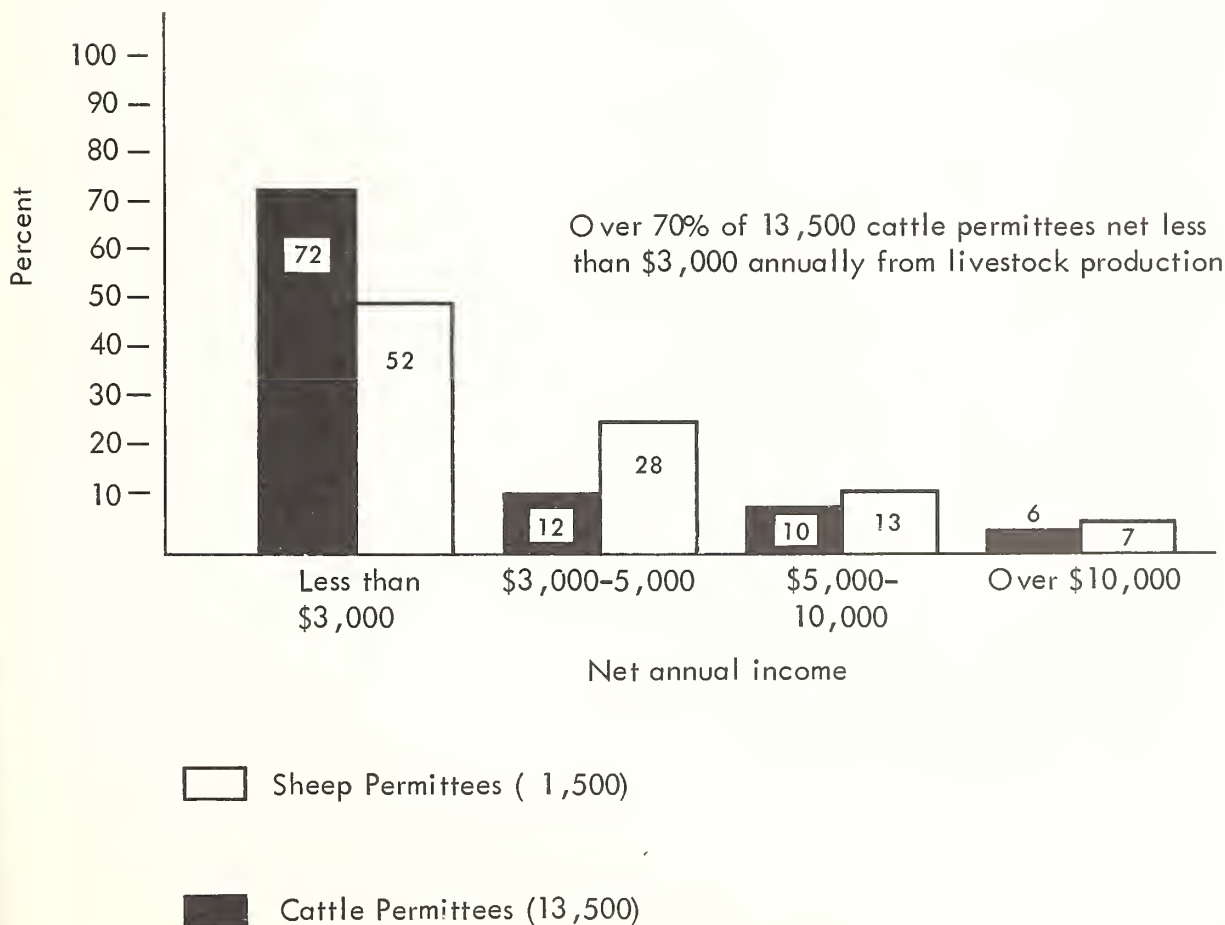


Figure 4-a



RANGE REVEGETATION

1967 .....	\$2,854,000
1968 .....	2,895,000
1969 .....	3,124,000
Increase .....	+229,000

An increase of \$229,000 is needed as follows:

- (1) \$212,000 to put better soil and forage cover on about 13,000 acres of 160,000 depleted acres on National Forest System land in northern New Mexico, southwestern Colorado, and southern Utah.
- (2) \$17,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

About 6,000 animal unit months of additional grazing should become available for allocation within 3 years to low income family farmers-ranchers who graze their livestock upon the National Forest in this area.

Seven National Forests (Carson, Dixie, Fishlake, Manti-LaSal, Rio Grande, San Juan, and Santa Fe) with 2,900 permittees, of whom 2,600 earn less than \$3,000 annually from livestock production, would be involved.

The overall program is concerned with cultural treatment of depleted rangeland to arrest soil and vegetative deterioration and improve the amount and kind of forage.

Revegetation practices include seeding of grass and other forage species, control of poisonous plants and undesirable plants which are competing with forage plants, and mechanical treatment of the land for better utilization of limited moisture.

This expeditious rehabilitation of rangeland is directed primarily to severely depleted areas which will not respond to management or control of livestock numbers within a reasonable span of time. These areas are often pivotal in the protection and management of larger range areas many times their size.

It is planned to treat 212,000 acres of depleted rangeland during the 1969 budget year.

Examples of Recent and Projected Accomplishments

	<u>FY 1967</u>	<u>FY 1968</u>	<u>FY 1969</u>
Acres revegetated:			
With appropriated funds .....	199,700	199,700	212,000
With permittee funds .....	20,000	20,000	20,000
Total .....	219,700	219,700	232,000





RANGE IMPROVEMENTS

1967 .....	\$3,442,000
1968 .....	3,496,000
1969 .....	4,368,000
Increase .....	+872,000

An increase of \$872,000 is needed as follows:

- (1) \$850,000 to help stabilize National Forest grazing use by low income farmers-ranchers and improve range conditions through construction of 500 miles of needed range fences and 175 livestock water developments.
- (2) \$22,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Construction of these range developments will provide about 19,000 man-days of local employment to Mexican-American and other local residents in northern New Mexico, southwestern Colorado, and southern Utah. National Forests involved are the Carson, Dixie, Fishlake, Manti-LaSal, Rio Grande, San Juan, and Santa Fe. About \$300,000 of the increase would be expended within local rural communities for necessary equipment and materials.

This effort would be a start toward full development of the natural and human resources in America's Mexican-American and closely associated farmer-rancher area. It would be a part of the effort to help stem migration from the country to the city.

The protection and management of the range environment is highly dependent upon fences, water developments and other facilitating structures. Range fences provide control over distribution of livestock. They also make possible the resting of portions of the range on a systematic rotation basis. Water developments benefit the range by making otherwise unused areas available for use and by spreading out the livestock, thus preventing concentration of grazing use and depletion of vegetation and soil.

There are presently 54,000 miles of fences and 38,000 water developments on the National Forest System ranges. An additional 50,000 miles of fence and 37,000 water developments are needed to make possible the intensive management of all 11,670 range allotments in the National Forest System. Existing improvements must be maintained to keep them effective.

It is planned to construct 1,650 miles of fence and 1,375 water developments during budget year 1969.



Examples of Recent and Projected Accomplishments

	<u>1967</u>		<u>1968</u>		<u>1969</u>	
	Cost (In thousands of dollars)		Cost (In thousands of dollars)		Cost (In thousands of dollars)	
	<u>Units</u>		<u>Units</u>		<u>Units</u>	
<u>Government funds:</u>						
<u>Construction:</u>						
Fences (miles) ..	1,284	1,530	1,077	1,554	1,650	2,194
Water developments (each) .....	1,266	630	1,113	640	1,375	855
Corrals (each) ..	13	13	13	13	13	13
Stock driveways (miles) .....	57	13	57	13	57	13
Cattleguards (each) .....	101	102	101	104	101	105
<u>Maintenance</u> .....		<u>1,154</u>		<u>1,172</u>		<u>1,188</u>
Total costs ...		<u>3,442</u>		<u>3,496</u>		<u>4,368</u>
<u>Permittee contributions:</u>						
<u>Construction:</u>						
Fences (miles) ..	376	359	(Same as 1967)	(Same as 1967)	(Same as 1967)	(Same as 1967)
Water developments (each) .....	456	185				
Corrals (each) ..	30	19				
Stock driveways (miles) .....	38	7				
Cattleguards (each) .....	23	21				
<u>Maintenance</u> .....		<u>1,000</u>				
Total costs ...		<u>1,591</u>				



SOIL AND WATER MANAGEMENT

1967 .....	\$6,361,000
1968 .....	5,870,000
1969 .....	5,915,000
Increase .....	+45,000

An increase of \$45,000 is needed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

A positive watershed management program is the first requisite of a rational multiple use, sustained yield, natural resource and development program for the National Forest System. It consists of three discrete but inseparably related main activities:

- (1) The protection of the most basic of all resources, soil and water.
- (2) The restoration of the hydrologic capability of damaged watersheds which contribute to a depressed rural economy and mar the natural beauty of the forest environment.
- (3) Action programs to increase the contribution the National Forest water resource makes to the social and economic growth of rural communities.

Scientific soil and hydrologic surveys and analyses provide the basic information upon which detailed plans and action programs are developed and carried out. The results of this scientific endeavor make a direct contribution to the immediate and long-term environmental and economic viability of rural America. The program results can be readily measured in terms of rural communities which can be benefited by the maintenance or improvement of water quality, increased water yield, improved timing of water yield, maintenance and improvement of soil productivity, and the assurance of an area suitable for outdoor recreation of all types.

During fiscal year 1969 action programs will be concentrated on the highest priority elements of the total program. These are concerned with watershed restoration and improved water supplies in order to:

- (1) Permit greater attention to the basic job of preventing serious damage to the soil and water resources.
- (2) Develop prescriptions to increase water yield in rural areas where persistent water shortages are causing economic stagnation or decline of rural communities.



- (3) Prepare watershed restoration plans for seriously damaged watersheds where sediment, debris, and flood runoff is a direct threat to rural communities and their water supplies or where these conditions are seriously damaging other resource opportunities.

Emphasis will continue to be given to:

- (1) Water quality and environmental analysis. Investigation, analysis, and design of action plans to prevent or correct serious air and water pollution originating on National Forest watersheds is becoming increasingly urgent in the case of:
  - (a) Municipal supply watersheds, particularly those in rural areas.
  - (b) Water bodies with heavy recreation use.
  - (c) Where major changes occur in water use.
  - (d) Where there is an indication of water quality deterioration as a consequence of land use practices.

In addition to the basic need for this work in terms of Forest Service responsibility to conduct its activities without impairment of the production of the land, recent Executive Orders and legislation on air and water quality emphasize that such actions are needed for compliance with overall national policy and priorities. Action is planned on 25 watersheds with known or suspected pollution problems.

- (2) Water use requirements. In the West, particularly, more and more demands are being made upon the available water supply. National Forest System needs can be recognized through a program of inventory, analysis, and notification to the appropriate State agencies. By this means State officials, rural communities, and related water dependent agricultural and industrial enterprises can be assured of the availability of water on which to base rural community development programs.
- (3) Coordination and protection prescriptions. This provides the criteria and standards for conduct of all National Forest activities to meet predetermined soil productivity and stability, water quality, flood plain, and water yield needs in connection with multiple use management programs. In terms of benefits to be derived, there is no reasonable alternative to maintaining and improving water quality and soil productivity.





Included in this activity is the furnishing of technical advice by watershed and soil scientists on soil, water, and environmental resource and use requirements in municipal supply, other high value watersheds, especially in connection with rural development projects which could be effected by Forest Service land management activities.

Prescriptions fully coordinated with overall multiple use objectives are planned for over 400 developmental projects, thus providing protection for soil values, natural beauty, and water quality.

- (4) Watershed restoration. Restoring the hydrologic functioning of rural lands damaged beyond the point of natural recovery is essential to returning these lands to a productive purpose. The survey and analysis leading to a blue print of action and the installation of measures necessary to repair the utility, aesthetics, and resource capabilities of damaged areas and to restore favorable hydrologic functions of the site and watershed planned on:

- (a) 9,400 acres of sheet eroded and deteriorated area.
- (b) 100 miles of eroding streambanks, shorelines, and gullies that benefit 1,200 miles of headwater streams and shorelines.
- (c) 270 miles of abandoned and actively eroding roads and trails.

- (5) Increasing National Forest water yields. Public benefits available through upstream watershed development to provide new and improved water supplies is a prerequisite to new jobs, industries, expansion of recreational opportunities, and better living standards in many rural areas.

During fiscal year 1969, hydrologic surveys and analyses leading to scientifically designed prescriptions to increase water yield through a coordinated program of multiple use management will be continued in those areas where current yield improvement programs are now under way and initiated in those areas where other resource development programs require such prescription if resource productivity is to be optimized.

#### Examples of Recent Accomplishments

- (1) Watershed management. During 1967, increased emphasis was placed on plans necessary to provide more usable water in places of the greatest need. This is a positive step in rural area development which is uniquely available to National Forest System lands.



For example, the Pacific Southwest Survey moved ahead on schedule. Additional water quality monitoring stations were installed. Increased demands for information from our soils program provided specific information for resource uses. Impact surveys to provide information for integrated use increased in number over previous years. This year also saw the completion of the surface mine survey and report. Continued emphasis has been given to the management of mining claims and wise use of mineral resources on National Forest System lands.

- (2) Surface mining survey. The Forest Service participated with some 15 Federal agencies or authorities in the two-year study of strip and surface mining operations and their effects in the United States under PL 89-4. The Forest Service developed the random sampling survey for 693 sites in the nationwide study and participated in making technical on-site examinations of surface mining and its effects, as well as the effectiveness of rehabilitation measures. 108,000 acres of National Forest lands disturbed by mining need varying intensities of further corrective action to obtain soil stabilization, storm water controls, water pollution abatement, access to areas above high walls, and impairment of beauty. This disturbed acreage includes surface mined areas, prospecting pits, and associated access roads.
- (3) Soils program. National Forest land management plans provide for maximum use of resources with a minimum of impairment to the soils. A knowledge of the soil limitations and capabilities in relation to various management activities and land uses is a basic necessity in the development of coordinated land and resource plans.

Soil surveys are a means of stratifying kinds of lands and thereby isolating problems in order that they can be more effectively dealt with in planning and management. In fiscal year 1967, comprehensive soil surveys were completed on 2.6 million acres of National Forest lands and reconnaissance surveys on another 4.5 million acres. To date, a total of 15.3 million acres of detail surveys and 23.1 million of reconnaissance surveys have been completed.

In addition to the soil surveys, specific soil management information was provided to many Forest Service resource managers for detailed planning of such projects as tree planting, timber sales, road location selection, watershed rehabilitation, recreation developments, all of which make major contributions to maintaining natural beauty and economic development of rural areas.

- (4) Water resource program. 84 watershed scientists working on 80 National Forests completed hydrologic and/or watershed condition surveys on almost 12.4 million acres of National Forest lands during fiscal year 1967. This included:



- (a) Reconnaissance level hydrologic and condition surveys on 10.1 million acres to identify and classify problem areas and to determine and evaluate existing and potential water yield improvement and sediment reduction capacities.
- (b) Specialized watershed condition surveys on 0.9 million acres to provide the information needed to prescribe treatment on specific problem areas.
- (c) Detailed hydrologic surveys and analyses on 1.4 million acres to provide the basis for comprehensive watershed management plans for municipal and other high value watersheds.

Information obtained from these surveys and analyses, provided the basis for preparing and implementing 95 individual watershed management plans in the rural countryside.

Several new computer programs were developed during this last year to facilitate utilization of the mass of data being collected on the barometer watersheds and on the hydrologic surveys. These include programs for converting water yield data, water quality data, and data from precipitation, streamflow, and climatic stations into usable form, and analytical programs to compute water balances and to make sediment calculations. Additional computer programs to permit storage and retrieval of soils and water use data are now being tested and should be operational by the end of next year.

The water balance and sediment reduction investigation indicates that 40 million acres on 41 National Forests located in Arizona, California, Colorado, New Mexico, Nevada, Utah, and Wyoming can produce an estimated 4 million acre-feet of additional water to help meet the critical shortage in the arid Southwest.

- (5) Restoring damaged watersheds. 1967 saw the completion of one major restoration program. In the Shasta-Keswick Reservoir areas of northern California, copper smelter operations in early 1900's denuded large areas on steep hillsides tributary to the Sacramento River with resultant deep gully erosion. The planting of trees, shrubs and grass, the construction of check dams and the installation of sidehill terraces on 21,400 acres has been completed after a \$1.3 million interagency 21-year effort. Siltation of Shasta Reservoir has been materially reduced thereby enhancing the quality of lake and stream waters, recreation opportunity has been improved, and the new vegetation is restoring scenic qualities of the adjacent environment. A relatively inexpensive annual maintenance program will assure a continuing contribution to the economy and well being of the associated rural community.



Special treatments to remedy bad watershed conditions from wild fires continued. Emergency measures were applied to 30 burned-over areas involving 51,000 acres that pose flood and sediment threats to downstream areas.

In fiscal year 1967, Forest Service crews treated and stabilized 60,000 acres of sheet eroded and deteriorated areas. More than 150 miles of eroding streambanks, shorelines, and gullies were intensively treated that benefited over 250 miles of headwater streams and shorelines. In addition, 1,500 miles of abandoned actively eroding old roads and trails were stabilized. This work is helping to improve water, land, and timber in the rural countryside.

- (6) Water pollution. A system for review and surveillance of the effect of Forest Service activities on water resources within the National Forest watersheds was expanded. At about 100 sites conditions are observed periodically and samples are collected for analysis of water quality. One of many examples is the Forest Service sampling of water destined for municipal use by the City of Everett, Washington. By such sampling, the effect of National Forest management practices on the quality of this water is determined. This information provides a basis for decision-making as to the modification, limitation or acceleration of management programs.





MINERAL CLAIMS, LEASES, AND SPECIAL USES

1967 .....	\$4,097,000
1968 .....	4,191,000
1969 .....	4,230,000
Increase .....	+39,000

An increase of \$39,000 is needed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

This program has the responsibility for providing for the management of mineral resource development and special land uses on National Forest System lands in a manner which insures adequate protection of rural America's environmental quality. Orderly development of the mineral resources contributes to rural development opportunities and the welfare of rural residents. Valid mining is therefore encouraged through the examination and clear-listing of those claims which meet the requirements of the mining laws.

Mineral exploration and mining operations on National Forest System lands reserved from the public domain are, with few exceptions, conducted with only minimal State or Federal legislative restraints. Under these circumstances the safeguarding of other resource values--particularly aesthetics, soil, and water--from serious and lasting damage is dependent upon timely and continuing supervision. (See Figure 6.) Mineral examination, a time-consuming job, has two purposes:

- (1) To examine and report on those claims on which a patent application has been filed.
- (2) To detect and eliminate those claims involving unauthorized use of public lands which fail to meet the requirements of the mining laws.

It is estimated there are 7,000 occupancy trespass cases on mining claims. Over 5,300 residential-type structures are involved in such claims. Actions clearing up less than 1,000 of these cases have been completed. Applications under PL 87-851 (76 Stat. 1127) will legalize some of these occupancy cases.

Several companies have active prospecting operations underway in wilderness areas. These operations can be expected to increase as mining companies attempt to complete their mineral exploration work prior to the 1983 terminal date established in the Wilderness Act. Orderly and supervised exploration, now necessary for coordination with public values of soil, water, and other surface resources, will be even more essential and demanding to minimize the effect on the wilderness environment.



Mineral leasing activities require similar managerial measures. The leasing job includes:

- (1) Reviewing applications for mineral permits and leases to determine whether mineral exploration and development can be carried on in harmony with National Forest objectives to protect soil and water, recreation, and other purposes, and to provide stipulations and guidelines for assuring coordination with surface resource requirements.
- (2) On-the-ground administration to make sure the stipulations are understood and applied in accordance with the permit or lease, and to make sure that facilities which are a part of mineral permits and leases, such as roads and pipelines, are properly installed and maintained.

Surface mining requires protection and supervision before, during, and after the operation to prevent deleterious effects and provide adequate reclamation. Surface mining of coal has an added hazard of acid pollution of streams. Recent expansion of steam generating capacity using coal will give new impetus to the coal strip mining industry, which has been on the increase each year. Operations will include coal deposits in the National Forests and Grasslands. New methods of processing and upgrading iron ore and taconite have now made it economically feasible to mine low-grade deposits. Demands for both coal and iron have resulted in increased leasing and mining of both public and privately owned minerals on acquired lands as well as public domain National Forest System lands. These developments contribute to the economic well-being of the local rural communities.

Special use permits and easements (other than recreation) for the use of National Forest lands have increased from 36,000 to 40,000 since 1964. There is a turnover of about 10%, or 4,000 permits, a year caused by changes in ownership. The permits and easements presently being administered cover in excess of 5 million acres and over 57,000 miles of rights-of-way. They are essentially an integral part of providing the base for rural development.

Proper supervision and administration of these uses is essential to prevent damage to rural area resources and monetary loss to local communities. The protection of natural beauty, the health and safety of the public, and the control of water and air pollution are some of the factors that are considered in administering these uses.

#### Examples of Recent Accomplishments

Minerals management activities significantly increased in fiscal year 1967. Awareness of minerals as a resource to be managed is evident in cooperative planning for two large mines which went into production on National Forest System lands. Prospecting activity was begun in several wildernesses. Occupancy trespass cases received increasing attention, and applications under the Mining Claims Occupancy Act reached a new high. Income from mineral leasing on acquired lands increased more than \$300,000 over fiscal year 1966 receipts. Some specific examples of accomplishments are listed below.



Mining claims. A total of 1,453 mining claims were examined for compliance with the mining laws during fiscal year 1967. In addition, management of surface resources was conducted on 3,885 claims covering over 75,000 acres.

There were 86 patent applications, involving 599 claims, pending at the close of calendar year 1966. Actions on 341 claims were completed during 1967. Twenty-six claims (12 applications) aggregating 505 acres were recommended for patent during the calendar year.

Surface rights determination activities are limited to ascertaining the validity of individual claims. One new area was approved for determination on the Deerlodge National Forest in Montana. This consisted of several scattered tracts, aggregating 15,000 acres, which were received by exchange. As of December 31, 1967, the 11-year surface rights determination project had produced the following results:

Acres completed .....	117,829,824
Number of claims on verified statements .....	13,371
Withdrawn from verified statements .....	9,987
Asserted rights not upheld .....	1,302
Asserted rights valid .....	2,129

Action in compliance with the Church-Johnson Mining Claims Occupancy Act continued with particular emphasis in the California Region. As of July 1, 1967, a total of 271 cases involved National Forest System lands. Of these, 107 were received during the fiscal year. Of the 42 cases completed, fee title was offered in 16 cases, a lease offered in 14 cases, 3 were issued special use permits and 9 were rejected because applicants were not qualified.

In addition, 516 geologic investigations in connection with land exchanges, recreation areas, road construction, bridge location, and dam sites were conducted, which involved nearly 83,000 acres.

Mineral leases and permits. There are nearly 19,000 mineral leases and permits on about 16 million acres of National Forest System lands. There are 227 prospecting permits which are estimated to cover nearly one million acres. Included are 15,350 oil and gas leases, of which 8,760 are on public domain forest land and 6,590 on acquired lands. Leases for other minerals total 297, with 177 on public domain lands. Hardrock leases on acquired lands aggregate 267. There are 1,750 leases for mineral materials, with nearly 1,200 on public domain forest land. There are 865 mineral reservations and rights outstanding, aggregating over 190,000 acres, which are being operated.



Total revenue from mineral leases and permits on National Forest System acquired lands amounted to \$4,063,839 in fiscal year 1967. In addition, it is estimated that nearly \$20 million in revenues were received from rents and royalties for leases on National Forests and National Grasslands reserved from the public domain.

Subsurface gas storage agreement. As of January 1, 1967, a new underground gas storage agreement was in effect on lands of the United States in the Manistee National Forest, Michigan. Natural gas has been stored under these lands for over a decade. However, negotiations recognizing the rights of the United States have only recently culminated in agreement between the parties. The agreement grants Michigan Consolidated exclusive storage rights for a period of 50 years. Surface use is subject to the consent of the Secretary of Agriculture.

Special uses. National Forest land and other land administered by the Forest Service may be used for special purposes when such uses are in the public interest. About 40,000 special use permits covering 51 different purposes such as archaeological research, hay cutting, electronic installations, reservoirs, water supplies, and many other desirable uses are now in effect. Fiscal year 1967 receipts for special land uses were:

Power .....	\$115,060
Other land uses, not associated with recreation .....	<u>604,681</u>
Total .....	<u><u>719,741</u></u>

This is an increase of \$80,923 over the previous year.







Phosphate prospecting on the Deerlodge National Forest, Montana, before rehabilitation.

Close supervision and control over use of National Forest lands assures that all resources are adequately protected from damage.



The same area after rehabilitation.



LAND CLASSIFICATION, ADJUSTMENTS, AND SURVEYS

1967 .....	\$5,725,000
1968 .....	6,210,000
1969 .....	6,534,000
Increase .....	+324,000

An increase of \$324,000 is needed as follows:

- (1) \$270,000 to carry forward this activity at the level authorized in the 1968 Appropriation Act. Pursuant to PL 90-218, obligations in fiscal year 1968 were deferred for one year.
- (2) \$54,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Land Classification--\$380,000

This function of land classification is to structure and recommend programs concerning the scope, location and composition of the National Forest System that will most effectively help accomplish national objectives for rural areas. Purpose is to:

- (1) Improve the land base to help meet current and prospective public needs for outdoor recreation space.
- (2) Enhance the capabilities of recreation, timber, range forage, water and wildlife resources to build up rural economies.
- (3) Increase watershed protection and betterment.
- (4) Promote stability and encourage growth of communities in and about National Forest areas.
- (5) Facilitate more economical administration of public land programs.

Activities include:

- (1) Extensions or retractions of National Forest System.
- (2) Transfers of Federal lands.
- (3) Planning for National Recreation Areas in and about National Forests.
- (4) Determinations of desirable areas of consolidation of public and private ownership in established National Forest System units, including community impacts.



Financing at this level is essential to meeting pressing needs for:

- (1) Full factual information on and competent analysis of proposals for changes in National Forest System or establishment of National Recreation Areas in and about the National Forests.
- (2) Detailed analyses of defined areas within the National Forests and National Grasslands to determine direction that land exchange and land consolidation programs should take to best accomplish national objectives for rural areas.
- (3) Determining and achieving sound transfers of Federal land to or from the National Forest System, including jurisdictional transfers of numerous Federal water control projects important for outdoor recreation to achieve optimum recreation development and use most efficiently at least cost.
- (4) Cooperative planning in Alaska relative to State applications for National Forest lands for community purposes as provided for under the Statehood Act and other legislation.

Land classification activity is increasingly more urgent and complex. Demands for use of land grow yearly; there is no more land. Current prospective growths in population, increased leisure, urban pressures for outdoor space, more frequent water supply crises for heavily populated centers, large programs of water control projects having high public recreation potential, better roads and other access, generate heavy pressures on the existing land base by an increasingly urbanized society. This affects public lands, especially the National Forest System which, in many areas, not only receive heavy public use but includes valuable resources and outstanding natural beauty.

At the same time, a high proportion of counties containing large areas of publicly important forest and watershed areas are depressed economically and many are poverty-ridden. National Forest programs in many instances can form the base for mitigating this situation.

There is need to continually assess the location and extent of the National Forest System components and the direction land use and ownership patterns should take in relation to changing situations resulting from these diverse factors. The 154 National Forests and 19 National Grasslands located in 34 States and Puerto Rico include more than 40 million acres of non-Federal land. Programs for consolidations of landownership within existing boundaries of these units need to be based upon sound consideration of both long-time effects on tributary areas and practicalities in order to:





- (1) Protect the public stake in watershed, forest and recreation resources.
- (2) Provide for expanding communities and industries.
- (3) Achieve economical management.

Water-oriented recreational use of land at or near Federal reservoirs has assumed large proportions and often is a significant economic factor in the locality. There is an interdepartmental agreement on management of land at Department of the Army reservoir projects and legislation to enable transfers of land at Bureau of Reclamation projects where such projects are located within or adjoining National Forests. Stepped-up action concerning land jurisdiction at more than two dozen reservoirs in and about National Forests must be continued to avoid duplication of plans and programs, take advantage of existing National Forest organizations, and assure timely and economical development of recreation and land use facilities. Elsewhere, expanded activity in transfers of public land jurisdiction based upon joint studies with the National Park Service or Bureau of Land Management is called for in the interest of more economical or effective public service.

The land classification program for fiscal year 1969 will be concerned with several million acres of forest, watershed, and recreation lands in the areas of the National Forest System. It will also be concerned with the management and programs, from the national, regional, and local standpoints, for such lands. Involved will be:

- (1) Consolidations of landownership.
- (2) National Forest adjustments to exclude lands where National Forest programs are no longer justified and to include areas where such programs for conservation of resources and improved rural economies would be in the national and local interest.
- (3) Proposals for establishment of National Recreation Areas.
- (4) New National Forest programs for the Potomac River.
- (5) Questions of interagency adjustments in land jurisdiction involving national parks and monuments and other Federal lands in and about the National Forest System.

#### Examples of Recent Accomplishments

- (1) In the interest of efficiency and economy, the Departments of Agriculture and Interior agreed that approximately 200,000 acres of land including 122,000 acres administered by the National Park Service directly affected by the Flaming Gorge Reservoir in Utah and Wyoming should be administered by the Ashley National Forest of the Forest Service. Detailed information





for use of executive agencies and Congress in considering legislation to establish the Flaming Gorge National Recreation Area and Sawtooth National Recreation Area, both to be administered in the Department of Agriculture, was developed and compiled. These areas will be economic assets to the surrounding areas as well as outstanding and nationally valuable outdoor recreation projects.

- (2) Efficient administration of more than 31,000 acres in tracts of isolated public domain was provided for by their withdrawal from public domain and reservation as part of National Forest to which the lands relate. Among other recent changes affecting the National Forest System were exclusions from National Forest boundaries totaling nearly 39,000 acres. These exclusions primarily concerned private lands within boundaries of the Gifford Pinchot National Forest in the State of Washington.
- (3) Some 7,800 acres of Bureau of Reclamation lands intermingled with or adjacent to National Forest lands at four reservoirs were added to the National Forests concerned to promote economical resource administration. Such actions provide for effective correlation of programs of reservoir-induced recreation and other resource uses with resource management on surrounding National Forest lands and take advantage of an in-place Forest Service land management organization. Similarly, local agreement was reached to interchange lands administered by the Corps of Engineers and the Forest Service at the Allegheny Reservoir in Pennsylvania. National Forest lands needed for the dam and related uses will be under jurisdiction of the Corps of Engineers and lands in and about the reservoir having recreational and other resource values will be included in the Allegheny National Forest for correlated management with surrounding National Forest areas.

#### Land Exchange--\$2,993,000

The fiscal year 1969 program level will continue an accelerated land exchange program as recommended by a Joint Management Review Task Force, comprising representatives of the Bureau of the Budget, U. S. Department of Agriculture, and Civil Service Commission. Properly conceived exchanges result in material management benefits to the United States. The consolidation of ownership achieves a 10-year cost avoidance conservatively estimated to be at a ratio of \$5 for every dollar spent in planning, negotiating and accomplishing a land exchange. Such exchanges alleviate the need to construct certain road segments and the location and marking of property lines. The issuance of certain special use permits and other management costs are also avoided. Selected examples of estimated cost avoidance which will result during the next 10 years, from the fiscal year 1969 exchange program are:



<u>Reductions</u>	<u>Units</u>	<u>Amount</u> (In thousands)
(1) Property lines and corners .....	4,170 miles	\$4,500
(2) Road construction and maintenance .	540 miles	7,900
(3) Use permits and occupancy trespass	1,180 cases	700
(4) Road rights-of-way needs .....	800 cases	<u>3,100</u>
Total .....		16,200

Material revenue increases to the United States Treasury can also result through well planned exchanges. Access road problems can be eliminated and make heretofore inaccessible mature timber stands available for harvest to the mutual benefit of the United States, timber companies in need of log supplies, and the rural economy. Significant benefits can be derived for both the United States and private owners engaged in livestock operations through the consolidation of ownerships, thus reducing costs and improving management of the ranges.

Carefully designed land exchanges can make material contributions in bettering rural America and the communities located within or near the boundaries of the National Forest System. Farmers operating marginal operational farms can frequently acquire the adjoining National Forest System lands suitable for farming, thus permitting development of an economic farm unit. Communities are frequently aided through exchanges that provide lands for expansion and development. During the period 1956-1967, 155 such exchanges were made whereby 66 communities in 17 States were benefited.

The fiscal year 1969 land exchange program will involve the examination and appraisal of 650,000 acres involving an estimated 475 proposed exchanges. The land the Government gives and receives in exchanges must be examined and appraised. Following examination and appraisal, negotiations are expected to be completed and 225 cases approved during the fiscal year involving a total of 300,000 acres. Additional approvals will also result in the subsequent fiscal year.

#### Examples of Recent Accomplishments

In fiscal year 1967, 155 land exchanges were approved. In these exchanges the United States will acquire 83,813.09 acres valued at \$14,731,398 and will grant 81,549.87 acres valued at \$13,433,502. A total of 158 land exchanges were fully completed with title to 91,793 acres passing to the United States and 74,045 acres passing to the other landowners. The net increase in National Forest acreage was 17,748 acres.



Land Status Records and Land Line Location--\$2,202,000

These two projects are closely related. The first is the research of records and the establishment of a system of land status record keeping that will be accurate and up to date at all times. This record will be furnished all field units of the Forest Service and will show exactly what the United States owns which must be administered by the Forest Service. It will also show ownerships by others, and Congressional and administrative actions which limit or otherwise affect administration of the National Forest System. The second is the location and marking of property lines bounding lands the Forest Service must administer. Significant progress in both projects is needed so the Forest Service can carry out expanding uses of National Forest System resources, offer timely cooperation in developing and managing the adjoining properties and effectively prevent and prosecute careless or deliberate trespasses. The land line location program will reveal the location on the ground of land ownership interests of the United States and others, affecting administration of the National Forest System.

Land status records. This is a job of converting to a new land status record system. In the process all records affecting title and restricting use of lands in the National Forest System are reviewed. Many discrepancies and previously unknown interests are being found and corrected. The new system will provide current central posting of records and a complete atlas record for all Forest Service administrative field units (about 1,100).

Work Proposed for 1969

	1967 <u>Actual</u>	1968 <u>Planned</u>	1969 <u>Estimated</u>
Townships completed .....	1,700	1,700	1,700
(Total townships in program -- 17,000)			
(Completed through 1967 -- 7,600)			

The systematic research of records and conversion to the new system continues to identify many parcels and general areas which have previously been misunderstood, identified inaccurately or overlooked in administration due to poor identifying ties between records and ground location.

Land line location. Lands in the National Forest System are bounded by over 280,000 miles of property lines controlled by over 1,130,000 property corners. The corners were established by surveyors from 50 to nearly 200 years ago. Maintenance of corners has either not been done, or done so poorly that many have been lost.

It is estimated that 10,000 corners are being lost annually. The program involves the search for corners and remonumentation of those about to disappear. It costs about \$60 to search out and remonument a corner to full standard. If the corner is lost the cost of search and the reestablishment of the corner by approved cadastral survey methods will be about \$600.



Establishment of lost corners is needed to:

- (1) Accommodate increasing multiple use demands.
- (2) Confirm trespass and bring such cases to successful conclusion.
- (3) Correct land ownership conflicts due to mistake, inadvertence or error in acquisition of lands by the United States.

Beginning in fiscal year 1966 a part of the land line location appropriation was transferred to the Bureau of Land Management in the Department of the Interior to finance part of the pressing need for corner reestablishment on public domain lands. That agency is responsible for the surveys of such lands. In fiscal year 1967 \$285,000 was transferred. Bureau of Land Management reestablished 1,246 corners. A similar transfer was made in fiscal year 1968 and this level will be maintained in 1969.

Another significant result of the land line location program is that some 150 quit claim deeds, averaging less than 5 acres each, have been issued to adjoining owners. This involved lands acquired by the United States from third parties by misunderstanding, mistake, inadvertence or error, thus casting a cloud on the title of the true owners. These reconveyances were made under authority of 57 Stat. 388, as amended. These actions remove the cloud on title of the rightful owners placed there by the United States. They also clearly establish the ownership locations on-the-ground so these small landowners can obtain loans and carry out plans to fully use and improve their properties.

Work Proposed for 1969 as Compared with 1968 and 1967

Job	: FY 1967 : : Accomplished :	: FY 1968 : : Planned :	: Total : : Planned : : FY 1969 :
<u>Corners</u>	:	:	:
Search .....	: 26,714 :	: 26,500 :	: 27,000 :
Remonument .....	: 15,172 :	: 11,500 :	: 11,750 :
Establish .....	: 1,246 :	: 1,000 :	: 1,200 :
Maintenance .....	: 210 :	: 200 :	: 200 :
<u>Miles</u>	:	:	:
Identify, survey and mark:	:	:	:
To full standard .....	: 1,443 :	: 1,000 :	: 1,000 :
To partial standard .....	: 809 :	: 1,400 :	: 1,500 :
Maintenance .....	: 1,450 :	: 1,300 :	: 1,500 :





Examples of Accomplishment Since 1958Corners (1,132,343 in National Forest System)

## 1. Search for corners:

a. Corners searched .....	155,274
b. Corners found .....	89,002
c. Corners lost .....	66,305

## 2. Establish and perpetuate corners:

a. Found corners remonumented .....	72,261
b. Corners established .....	1,950
c. Monumented corners maintained .....	600

Property Lines (281,168 miles in National Forest System)

## 1. Identify, survey, and mark:

a. To full standard .....	9,360
b. To partial standard .....	23,859

## 2. Maintain lines previously identified, surveyed, and marked .....

9,550

Photogrammetric Surveys--\$959,000

Multiple use planning requires a particular knowledge of the terrain, the extent and location of the natural resources, and how these resources are related and tied in with existing and planned transportation and recreational facilities. Elevational information is essential in the planning of transportation systems, timber sales and recreational facilities. Aerial photographs and photogrammetric surveys are the most modern tools for use in procuring data needed to determine the extent and location of National Forest resources, for improving and extending the management of them and related facilities, and for recording multiple use plans and activities.

These data are needed on some 640,000 square miles of area within the National Forests for general planning of transportation systems and planning timber sales. Approximately 46% of this area is adequately covered. The funds programed for fiscal year 1969 would be used to procure aerial photographs, to establish horizontal and vertical control, and to procure elevational terrain information by photogrammetric methods for 0.5% or an equivalent of 3,000 square miles of the areas for which these data are needed.



The scale, format, and accuracy of this material would be such that it can be released to the U.S. Geological Survey and form an integral part of the standard topographic mapping program of the United States. Thus, duplication of effort is avoided, costs are reduced, and the availability of standard topographic maps is speeded up.

In addition, the funds would be used to prepare, from existing terrain data, bases on the scale and format needed for showing the interrelationship of all National Forest resources affecting the multiple use management of the National Forest System. The scale and format of the prepared material must be compatible with the scale of the aerial photographs used in the execution of resource inventory surveys. These data are transferred to the multiple use management plans by photogrammetric means. The area of coverage of the plans to be prepared with the requested funds is about 0.5% or 4,000 square miles of the total requirement.

Utilizing the terrain data and resource inventory data procured through photogrammetric procedures, it is proposed to prepare general management bases on an adequate scale and format for approximately 15 National Forests. This represents new bases for approximately 6% of those needed but makes no provision for needed revision to bring others up to date.

The following table shows comparison of the actual or planned accomplishments under approved or requested financing:

		<u>Fiscal Year</u>		
	<u>1967</u>	<u>1968</u>	<u>1969</u>	
Terrain data -- thousands of acres .....	1,920	1,920	1,920	
-- square miles .....	3,000	3,000	3,000	
Resource inventory data -- thousand of acres	2,560	2,560	2,560	
-- square miles ..	4,000	4,000	4,000	
General management base -- forests .....	15	15	15	



FOREST FIRE PROTECTION

1967 .....	\$25,487,000
1968 .....	26,643,000
1969 .....	27,589,000
Increase .....	+946,000

An increase of \$946,000 is needed as follows:

- (1) \$725,000, by transfer from the activity Fighting Forest Fires (Project 12), to finance the fixed costs of managing and replacing specialized fire equipment on a budgeted basis from regular fire funds rather than an actual use basis from the emergency Fighting Forest Fires fund as in the past. This change does not add to costs but shifts the charge from the one activity to the other.
- (2) \$221,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The Forest Service has over a thousand pieces of equipment which is designed, acquired, or assigned primarily for fire suppression work. The equipment has to be held in readiness year-round to meet emergency fire situations. Its use for fire work is spasmodic, so the combined operation, repair and replacement rates, based on mileage run or hours used, has been very high. In the past this high cost has been borne almost entirely by the emergency fund for Fighting Forest Fires. The high rate cost has discouraged other Forest Service programs from using this expensive equipment during low fire hazard periods. The net effect has been to prevent full potential use of the equipment. This is not good management and results in increased cost to the Government.

During the current year a new equipment use rate system was tested to get better management. This system features two rates for equipment:

- (1) Fixed Ownership Rate. The Fixed Ownership Rate (FOR) recovers the replacement and management costs related to the equipment. These are costs which are incurred regardless of the amount of use made of the equipment and are recovered from the benefiting program or programs based on planned use. Those programs which require year-round availability of equipment for specific purposes, such as firefighting, finance the FOR costs for the entire year.
- (2) Use Rate. The use rate covers the costs of operation and maintenance of the equipment, and in all cases, is charged to the program actually using the equipment.



The system encourages regular Forest Service program use of primary-purpose fire equipment since such programs are now charged only the use rate for such equipment. This results in increased utilization of the fire equipment. Use rates have dropped accordingly, resulting in cost per mile or per hour savings to both the regular programs and the emergency fire program. Availability of the equipment at a reasonable rate has also resulted in reduced renting of privately owned equipment, and simplified work planning, budgeting and accounting.

The directive for putting this system into effect for specialized fire equipment is contained in Senate Report No. 233, May 16, 1967, on Interior and Related Agencies Appropriation Bill, 1968. The Forest Service was permitted, for fiscal year 1968, to finance FOR costs for such equipment from the firefighting fund and to budget such costs on an annual basis. Budgeting of emergency firefighting funds in advance of fire situations is not practiced by the Forest Service, therefore, this proposal is submitted for increasing the regular forest fire protection program by \$725,000.

The 1967 fire season was one of the driest and most threatening ever recorded. It was worse than 1910 when over 2,800,000 acres of National Forest land burned in Montana and Idaho alone. But due to steady improvement in fire protection over the years, total area burned on lands protected by the National Forests was held to slightly over 200,000 acres in 1967.

This looks like a commendable achievement and in many ways it is. National Forest resource values have increased steadily and today American communities could hardly tolerate a loss from fire like what happened in 1910. Though much smaller, even a loss like 1967 destroyed priceless natural beauty, and some rural communities will, for years to come, feel the negative economic impact of resources lost to fire. In short, though much progress has been made, an even stronger program would provide sound additional economic returns in terms of valuable resources saved from burning and at the same time provide more jobs for residents of small communities.

Like resource values, fire starting risks are also increasing. The National Forests now provide more opportunities for recreation. Industries and pay-rolls based on forest activities and other special uses are on the increase. All these operations create stronger communities and they also create more potential for man-caused fires. Moreover, there is growing need to use prescribed and controlled fire for hazard reduction in resource management and to preserve wilderness ecology. When combined with responsibility for wartime rural fire defense, the above presents an extremely complex fire problem.





Consequently, the principal objectives of National forest fire protection are to:

- (1) Hold fire losses to a level consistent with immediate and long-range land management objectives.
- (2) Use fire, when appropriate, to increase the productivity of National Forest lands.
- (3) Reduce to tolerable limits the threat from fire to life and resources in rural areas in case of an enemy attack.
- (4) Accomplish the above economically and with a high degree of personnel safety.

In line with the policy to hold down Federal spending, operations in fiscal year 1969 will not increase acreage protected intensively nor reduce possible resource damage and suppression costs occasioned by large fires during periods of severe weather. However, it will attempt to hold the line against increased risks by exploiting short-range opportunities to make improvements wherever possible in fire prevention, detection, initial attack and first reinforcements, air operations and modification of fuels to reduce fire spread potential. The estimate is an extension of fiscal year 1968 levels of financing. Compared with fiscal years 1967 and 1968 it would be used as follows (in thousands):

<u>Protection Measures</u>	<u>FY 1967</u>	<u>FY 1968</u>	<u>FY 1969</u>
Fire prevention .....	\$3,565	\$3,629	\$3,761
Fire detection .....	3,380	3,440	3,563
Fire attack forces .....	13,862	14,810	15,339
Air operations .....	3,240	3,298	3,413
Fuel modification .....	310	316	325
Equipment development .....	610	621	641
Studies, surveys, plans, and training ..	<u>520</u>	<u>529</u>	<u>547</u>
Total .....	25,487	26,643	27,589

Achievements expected for fiscal year 1969 are as follows:

- (1) Hold the line on numbers of man-caused fires per units of risk.
- (2) Make small but significant reduction in resource loss occasioned by large fires.



- (3) Reduce the total costs of forest fire protection.
- (4) Through cooperative efforts with other Federal agencies, States, and municipalities, develop maximum total strength to cope with fire emergencies including defense of rural areas from fire in case of an enemy attack.

#### Examples of Recent Accomplishments

Emergency mobilization. During August and September extreme fire emergencies in the Northwest created the biggest challenge faced by the Forest Service in many years. Thousands of fires occurred in the National Forests of Montana, Idaho, Oregon and Washington. To control them required mobilizing, in a very short time, thousands of men, a variety of equipment, and tons of supplies.

Trained fire crews from all over the West were flown to fire areas and thousands of firefighters were recruited locally. To lead and direct the massive attack, more than 1,000 fire control supervisory and specialist personnel were assigned to the Northwest from every other Forest Service region. This cadre of overhead, assisted by local supervisors, promptly welded a hard-hitting force whose record of accomplishments is reflected in thousands of acres of forest lands saved from fire.

Disaster area in Idaho. (See Figure 8, top.) Meanwhile in the Northwest numerous fires occurred on State and private lands. In Idaho firefighting forces of the State and local organizations were unable to cope with the problem. The governor requested Federal assistance and on August 30, President Johnson declared Idaho a disaster area. Then at the request of Governor Samuelson and Office of Emergency Planning, the Forest Service took action to control the Sundance Fire which had overwhelmed available State and local firefighting forces. Reinforcement action was also provided on other fires.

Infrared mapping. In 1967 the infrared fire mapping unit, placed into use last year, flew 135 mapping missions on 47 large fires. Heavy demand for the up-to-date details of fire location and intensity required two crews to man the plane and equipment around the clock. This intelligence permitted realistic determination of priorities, precise assignment of forces and improved decisions and management. It helped quiet fear and prevented evacuation and panic when the towns of Coolin and later Bonner's Ferry, Idaho were smoked in and threatened. It speeded mop-up and demobilization.

Air attack proves valuable. Fire attack from the air reached its greatest over-all use in 1967. Of particular value was a sling bucket for helicopters. Helicopters now hover over water, immerse and fill the bucket, and deliver it to a fire quicker, more economically and with greater accuracy than fixed wing aircraft. The only requirement is a close source



of water. More than 400,000 gallons of water or retardant were dropped from helicopters on fires in one region. Experience has proven sling buckets are more versatile, less costly, safer and more efficient than fixed or built-in helicopter tanks. Chemical retardants dropped from fixed wing aircraft had their second greatest year with more than four million gallons dropped. The smokejumpers continued to be the key firemen for remote areas with an all-time high of 7,358 jumps made in 1967. There was interchange of jumpers from one area to another to meet peak fire loads. (See Figure 8, middle.)

Equipment and supplies. A new light-weight lighting unit designed to assist firefighting crews at night was evaluated and found effective (Figure 8, bottom). Two units, weighing only 60 pounds each, provide sufficient light for a crew of 25 men and permit them to work with greater efficiency and safety. Precooked, self-contained, frozen meals were successfully used on an operational basis for firefighter feeding. Preparation is simple, efficient and fast -- requiring only several minutes of heating before use. One man can heat several hundred meals in a short time using special steam heaters. This type of feeding results in reduced waste, less chance for contamination, and requires only a fraction of the manpower needed to prepare other types of food.

Fire training advances. Simulation continues to be one of the cornerstones for training fire overhead. During 1967, it is estimated that 5,000 people from Federal and State fire services were trained with the command system simulators. This figure should increase substantially with the addition of two new units delivered during the year. There are now 7 simulators available for Forest Service fire training.

A Fire Control Training Field Support Project was established at Marana, Arizona, in 1967. It will now be possible to accelerate development of programed lesson materials, special audio-visual training equipment and upgrade lesson plans for national courses in advanced fire control, generalship, behavior, prevention and law enforcement.

One new simulator was installed at Marana in conjunction with a 40-unit Edex response trainer. This system provides a means for immediate feedback on the success of any training. The combination of Edex with simulator training provides an increase in the training capability by involving up to 5 times as many students per exercise as with the simulator alone.

Thirty instructors attended two simulator workshops in the fall of 1967 where they developed a standard course book containing basic initial attack, intermediate and complex exercises.

A new film on "Operational Use of Helicopters" is scheduled for release in early 1968. This film will supplement formal training in efficient, safe and economical use of helicopters in fire control operations. Development



of a prototype portable simulator for use in initial attack training is nearing completion. Eventual production of operational units will expand initial attack simulator training by providing inexpensive portable units for acquisition by forests.

Fire prevention and law enforcement. The report of the 1966 National Fire Prevention Acceleration Conference calls for action on fire prevention problems at all levels. It recommends a unified national program to accelerate prevention activities. Four regions now have accelerated fire prevention programs going on one or more National Forests. It is hoped to increase this effort to at least one accelerated prevention project in every region.

Safety. The "Report of the Fire Safety Review Team" recommended an action program to prevent men from being burned while fighting forest, grass and brush fires. Many of the recommendations put into effect noticeably contributed to safer firefighting in 1967. A training film, "Your Way Out," available this year shows how to use a newly developed fire shelter and demonstrates its effectiveness under severe fire entrapment situations.

Fire defense. Close liaison was maintained with the Office of Civil Defense to assure the best possible preparations for defending the forests of the country from fire in case of enemy attack. Improved procedure for infrared mapping of fire in wartime situations and better localized plans were provided through joint projects of OCD and the Forest Service. Continued emphasis was placed on having workable fire defense plans for all protection units.

Cooperation. The severe 1967 fire season required use of cooperative arrangement with many State, Federal and local organizations. The military was particularly helpful in providing men and equipment for logistic support on the largest fires. The Office of Emergency Planning issued a comprehensive report to the Congress for strengthening fire control and provided close liaison during the severe Northwest situation. Forest Service personnel and protection forces of Canadian Provinces worked together more than ever before. The Forest Service gave them major assistance in pumps, hose, tools and camp equipment in their early June critical period. Later, Canadians and U. S. firefighters worked side by side on boundary fires in Western States.

During 1967, over 200,000 acres of lands protected by the National Forests burned, representing a staggering loss. But when compared with fire protection capability available as recent as 10 years ago, the improved forest fire protection activities spared from fire valuable resources that would have otherwise burned on an additional 225,000 acres.



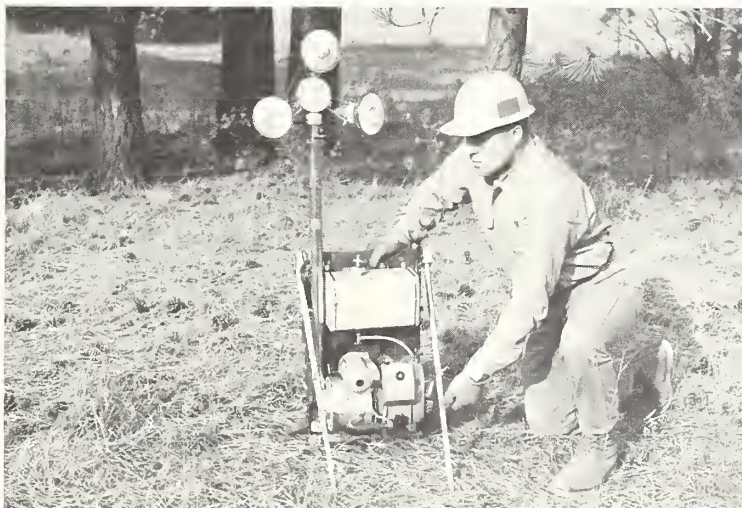


## FOREST FIRE PROTECTION



Here, in the aftermath of the Sundance Fire, natural beauty is gone and the economy of nearby communities will for years to come suffer from the loss of these resources.

The value of smokejumpers in fire control has been increased by using larger aircraft, developing improved equipment and greater interchange by regions to meet emergencies.



Portable lighting outfit—a backpack unit weighing only 60 pounds provides light for 25-man crews working at night.



CONSTRUCTION AND MAINTENANCE OF IMPROVEMENTS FOR FIRE AND GENERAL  
PURPOSES (INCLUDING COMMUNICATIONS)

1967 .....	\$11,040,000
1968 .....	9,738,000
1969 .....	8,793,000
Decrease .....	-945,000

A net decrease of \$945,000 is proposed as follows:

- (1) \$111,000 increase to correct water pollution problems at four critical sites in Arizona, Colorado, and Idaho.
- (2) \$62,000 increase to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.
- (3) \$1,118,000 decrease in construction of facilities of various types as a part of the overall effort to postpone items which can be deferred for the present.

This program provides for the construction, betterment and maintenance of buildings, utilities, airfields, communications systems, and related facilities throughout the National Forests and National Grasslands.

Amounts estimated for fiscal year 1969 compared with 1967 and 1968, are as follows:

	<u>FY 1967</u>		<u>FY 1968</u>		<u>FY 1969 (estimated)</u>	
	<u>No. of Units</u>	<u>Amount Available (in thousands)</u>	<u>No. of Units</u>	<u>Amount Available (in thousands)</u>	<u>No. of Units</u>	<u>Amount Available (in thousands)</u>
<u>CONSTRUCTION</u>						
Dwellings and barracks	43	\$1,056	24	\$964	17	\$652
Fire lookouts .....	11	155	6	128	2	58
Service and storage buildings, including offices .....	46	1,843	10	272	3	137
Airstrips and heli- spots .....	300	294	200	208	120	136
Communication facilities (radio and telephone)	- -	1,012	- -	1,015	- -	492
Site acquisition .....	- -	174	- -	70	- -	20
Major structures .....	2	318	3	204	3	247
Total Construction .		<u>4,852</u>		<u>2,861</u>		<u>1,742</u>









approved for fiscal year 1968. However, it was subsequently deleted when fiscal year 1968 obligations were reduced. The Dalton fire crew has been housed in buildings constructed during the CCC program. Because of their deteriorated condition, they were torn down in 1965. The crew is temporarily housed in buildings on the San Dimas Experimental Forest, an arrangement that is not satisfactory due to location and the need of the space by the experimental forest. The fire crew is a key part of the Angeles National Forest fire organization and must be housed at the Dalton location to meet adequate fire control standards.

(2) Barracks, North Tongass National Forest, Alaska ..... \$52,000

This 8-man unit (including sleeping and cooking facilities) is one of several facilities planned for development on the Wrangell Ranger District which has a rapidly expanding workload. Evidence of this expansion is the demand for timber wherein a 1967 cut of 30 million board feet is estimated to triple by 1971. Wrangell is a small community of less than 2,000 population and there are no adequate housing facilities available.

(3) Office, Allegheny National Forest, Pennsylvania ..... \$67,000

The Marienville Ranger District personnel presently occupy office space which is part of a converted equipment storage building constructed 30 years ago. It is crowded and presents a poor appearance. The proposed office would be located on Route 68 and well located to serve the expanding public need for recreation information (VIS Program). The community of Marienville, Pennsylvania, has a population of approximately 1,000 and there is no adequate commercial space available.

Betterment (Quality Improvement)--\$1,040,000

Existing facilities must be upgraded in order to continue their useful life. Many were constructed back in the 1930's with CCC labor and funds and require modernization. Some of these needs involve critical deficiencies in water and sewage disposal systems and in unsafe building foundations and electric wiring systems. Modern heating units are needed to replace those that are outmoded. In some instances addition of a room to a small dwelling, cabin, or office would accommodate expanding needs for many years. Some mountain airstrips and helispots have been made unsafe and inadequate for the increased use of large modern aircraft. Obsolete telephone systems are being converted to radio networks. Inadequate radio systems are being improved to meet communications needs.





\$111,000 of the amount planned for raising the standard of existing water and sanitary systems is earmarked specifically for correcting water pollution problems at four critical sites. These projects were identified by the Federal Water Pollution Control Administration as requiring immediate treatment to comply with requirements of Executive Order 11258. Involved are two administrative sites in Arizona and ranger stations in Colorado and Idaho.

#### Maintenance--\$6,011,000

It is economically essential that the physical plant upon which National Forest activities depend be adequately maintained. This plant facility consists of:

- 1,300 fire lookout towers and observatories
- 5,300 dwellings, cabins, and barracks buildings
- 800 field offices
- 6,300 storage and service buildings
- 3,100 water and sewage systems
- 20,000 radio units
- 1,200 landing fields and helispots
- 16,000 miles of telephone lines

Over 50% of the buildings listed above need major maintenance to keep them serviceable. Many of them were constructed 30 or more years ago. Any delay in providing the needed repair will allow increased deterioration, thus resulting in increased cost.

Maintenance funds are distributed to field units based on the number of improvements by classes currently justified by program utilization and an analyzed unit maintenance cost. Priorities are established at forest and sometimes regional levels.

#### Examples of Recent Accomplishments

##### Buildings and Related Facilities Construction Completed FY 1967

The completion of 38 additional new family dwellings has provided modern housing at a number of remote rural duty stations. Eleven fire lookouts were constructed to provide instant detection in hazardous fire areas. Five new barracks buildings have enabled the location of highly skilled fire crews in close proximity to areas where prompt dispatch is essential in reducing fire losses. Completion of 14 new field offices has relieved seriously overcrowded conditions and enabled our employees to provide improved service to the public. Thirty-two new service and storage buildings were completed to provide repair shop and warehouse space which is vital to our expanding programs. New construction of 23 water systems and sewer systems have provided modern facilities required to meet acceptable health and safety standards.



PAYMENTS TO EMPLOYEES' COMPENSATION FUND

1967 .....	\$733,381
1968 .....	759,000
1969 .....	<u>1,118,000</u>
Increase .....	<u><u>+359,000</u></u>

An increase of \$359,000 is required to reimburse the Employees' Compensation Fund, Department of Labor, in accordance with PL 86-767 (5 USC 785), which was enacted September 13, 1960, for benefit payments made from that fund to employees of the Forest Service who are injured while in the performance of duty. The 1969 payment will be \$1,118,131. The payment for 1968 was \$758,847.



WATER RESOURCE DEVELOPMENT RELATED ACTIVITIES

1967 .....	\$6,766,000
1968 .....	8,259,000
1969 .....	8,299,000
Increase .....	+40,000

An increase of \$40,000 is needed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Continuation of the current funding level will enable the Forest Service to redeem the highest priority elements of the Department of Agriculture's obligation at water development projects of other agencies. An increasing number of such developments for power, flood control, reclamation, and general water supply purposes are being planned for and constructed in and adjacent to National Forests and National Grasslands by Federal, State, and local agencies, and private groups.

The construction agencies, frequently through separate Congressional authorization, initiate the projects and schedule the performance. The Forest Service cooperates in the planning, development, and management of the water and related resource developments associated with National Forest System lands.

Each project poses resource problems and opportunities peculiar to the individual site under consideration, to adjacent and tributary lands, and to the associated rural area environment. This requires a comprehensive impact survey by the Forest Service to determine the effect of each water resource development proposal on all the resources, facilities, and the rural areas affected by the project. These surveys determine the best pattern for multiple use management of project associated land, prescribe the resource management adjustments needed to assure a maximum National Forest contribution to the water project, and identify Department-wide opportunities for utilizing project potential for the enhancement of rural America.

The work performed under this program, in addition to impact surveys, includes:

- (1) Liaison with the construction agency to assure the benefits of a combined and harmonious interagency effort.
- (2) Development of public use and management facilities to assure that project purposes are realized and enhanced--rather than thwarted and diminished--as public use increases at the reservoir and on related National Forest lands.



- (3) Treatment of lands tributary to or within the project area to provide improved water yields and reduced sedimentation which will better serve operating requirements of reservoirs, maintain or increase the useful life of the project, and provide for public safety and enjoyment.

The \$8.3 million level of funding will be adequate to prevent the most detrimental impact on water quality and natural beauty. It will provide for the initial requirement of identifying the full National Forest potential for project support and for enhancement of the associated rural environment. It will avoid gross misuse of resources in the more sensitive areas.

Work and financing planned for fiscal year 1969 is compared with that for fiscal years 1967 and 1968:

	<u>Fiscal Year 1967</u>		<u>Fiscal Year 1968</u>		<u>Fiscal Year 1969</u>	
	<u>No. of</u>		<u>No. of</u>		<u>No. of</u>	
	<u>Units</u>	<u>Cost</u>	<u>Units</u>	<u>Cost</u>	<u>Units</u>	<u>Cost</u>
			(Cost in thousands)			
Impact surveys and construction liaison ..	175	\$955	346	\$1,794	454	\$2,441
Public use, access, and management facilities .	13	5,324	37	5,595	24	4,893
Land treatment, soil stabilization and cover improvement .....	<u>14</u>	<u>487</u>	<u>30</u>	<u>870</u>	<u>71<sup>1/</sup></u>	<u>965</u>
Totals .....	201	6,766	413	8,259	549	8,299

<sup>1/</sup> Eleven of these projects (\$228,000) represent Forest Service obligation to finance land treatment on National Forest lands at those PL-566 projects where work plans have been approved since 3/21/66. The increased funding need also reflects Forest Service responsibilities for stump and debris removal where jurisdiction has been transferred from the Bureau of Reclamation. The lower cost per project, when compared with 1968, results from the (1) completion of one major job and (2) reduction in effort at other major jobs.

Impact Surveys and Construction Liaison ..... \$2,441,000

Impact surveys delineate the effect, define necessary mitigating measures and identify enhancement opportunities relative to proposed water resource developments associated with National Forests and National Grasslands. Reports resulting from such surveys document measures which are essential to the attainment of National





Forest multiple use objectives and identify how National Forest management can contribute to project purposes to optimize their economic and social contribution to rural America. To be effective, the surveys and reports must be concurrent with the construction agency's preliminary planning to permit their findings to be incorporated in the licensing or authorizing document.

Liaison with the construction agency during the construction period is necessary to facilitate coordination between the construction agency and the Forest Service. Protection of the land and resources, minimizing interference with regular protection and management activities, and facilitating construction agency operations are direct economic dividends derived from this program.

Fiscal year 1969 plans and justification. Experience has shown that without adequate analysis and liaison effort such as is provided by this activity, natural resources often suffer from enormous waste and misuse and the project works fail to make their maximum contribution. Natural beauty and high quality water are among those resources most susceptible to loss. The rising value of forest resources and constant increase in demands against the declining resource base requires increased perception, imagination, and thoroughness in the preparation of impact surveys. The impact survey effort and construction liaison work reflects an involvement at 454 projects. Based on an average project construction cost of \$29 million these 454 projects represent a total construction cost of about \$13.166 billion.

The enormous cost of this construction program associated with the National Forests provides some indication of extent of activity going on. An investment of \$2.4 million (.018 of 1% of construction cost) will help assure that projects are constructed in maximum harmony and minimum conflict with associated land, resource, and human values. Benefits per dollar expended for this program, while not readily or fully subject to measurement, are believed to exceed those for other elements of this line item. Although current Federal budget considerations will result in an overall reduction for project construction, it appears as though few, if any, current projects will be halted altogether. This requires that Forest Service impact survey and construction liaison work continue on all projects at a sustained level of effort. It does mean that the date of project completion will be delayed providing additional time to complete the installation of public use facilities.



Fiscal year 1967 accomplishment included preparation of impact survey reports for: Paskenta-Newville, Upalco, Olive Lake, Chequamegon Waters, Castaic Reservoir, Pyramid, Glacier View Dam, Spruce Park Dam, New Melones, Soque River, Upper Leaf River, Hardman Dam, Laurel Reservoir, Cave Run, Etowah River, Head of Little Tennessee, Laurens Shoals, North Fork Snoqualmie, Middle Fork Snoqualmie, and Northfield Reservoir.

Examples of impact survey efforts resulting in specific and meaningful contributions to natural resource values are:

- (1) A proposal for hydro-electric transmission line construction in a highly scenic area was analyzed in detail--tower site by tower site--in an effort to minimize adverse impacts on aesthetic values. The ensuing recommendations and requirements, translated into on-the-ground accomplishment through effective liaison work and construction agency cooperation, resulted in a final product that met both the operational requirements of the transmission line and the aesthetic requirements of the forest environment.
- (2) A partially completed reconnaissance level hydrologic analysis of National Forest lands tributary to proposed Pacific Southwest Water Plan facilities has indicated a potential National Forest contribution of 4 million acre-feet of new water per year. "New water" would result from a variety of resource management measures scientifically designed to increase stream-flow. The 4 million acre-foot figure is subject to adjustment as restraints for protection of other resource values are incorporated into management prescriptions.

Public Use, Access, and Management Facilities ..... 4,893,000

Fiscal year 1969 plans and justification. The Forest Service is responsible for designing and developing public use facilities on National Forest System lands at and adjacent to project reservoirs. Impact survey findings and recommendations provide for the protection of water quality and fulfillment of other project purposes by pointing the way to carefully designed public use development tailored to individual project requirements. Facilities include sanitation improvements, camping and picnic sites, swimming beaches, boat ramps, and other public use and information facilities. To serve their intended purpose, these facilities should be installed in time to meet the initial impact of visitor use when a new reservoir fills. Installation during the construction period is generally less expensive than after completion of the project. Failure to provide such facilities in a timely manner threatens project purposes and denies fulfillment of public use potential--a potential which has



already been purchased at large cost. Such failure also results in damage to prime recreation sites, destruction of natural beauty, pollution of streams and reservoirs, and conditions hazardous to the health and safety of the using public.

The fiscal year 1969 level of financing would provide construction of public access use and management facilities at 24 projects. These projects include:

- (1) Continuation of previous year's starts--Libby, Hungry Horse, Fryingpan-Arkansas, Flaming Gorge, Clair Engle, Shasta, Union Valley, Blue River, Mason, Cle Elum-Kachees, Sam Rayburn, Toledo Bend, Cave Run, Monroe, Allegheny, Middle Fork-Anderson, and Basin Brook.
- (2) New starts in fiscal year 1969--Box Canyon, Chevelon Canyon, Beardsley Reservoir, Stampede, Round Butte, Detroit, and Chequamegon Waters.

Planning for future facilities would take place at 44 projects. While construction is planned to be financed at 27% of need, planning will proceed at 30% of need. This planning effort recognizes the importance of being ready to proceed without delay when budget considerations permit resumed construction of these vital facilities.

Fiscal year 1967 accomplishment included construction of facilities at 13 projects--Hungry Horse, Libby, Flaming Gorge, Whiskeytown-Shasta Lake, Mason, Sam Rayburn, Toledo Bend, Allegheny Reservoir, Monroe, Middle Fork-Anderson, Lake of Egypt, Basin Brook, and Chewalla.

Land Treatment, Soil Stabilization, and Cover Improvement ..... 965,000

Fiscal year 1968 plans and justification. Treatment of lands tributary to water resource development projects to reduce sediment yield or to modify the pattern of runoff lengthens the life and increases the utility of the water control structures. This work is done on National Forest System lands tributary to the project, only where hydrologic analysis and other elements of the impact survey determine that such work is needed and that benefits to the project purpose are clearly established. Treatment programs include the following:

- (1) Modifying the vegetation to decrease erosion, to reduce flood peaks, and to increase the annual quantity and improve the timing of water yielded from the tributary lands.



- (2) Clearing reservoir areas, where not done as a part of construction, and keeping the reservoir free of debris to make the area safe for public use and to maintain scenic beauty.
- (3) Land treatment measures such as contour terracing, gully plugs, headwaters debris and flow retarding structures, and stream-bank and shoreline stabilization measures.

Essential land treatment and related measures is planned to take place at 71 projects including 11 PL-566 approved after 3/21/66. At 56 projects such measures will contribute to project purposes by providing for improved water yield. The removal of public safety hazards such as stumps and debris, will be accomplished on over 65,000 acres at 24 projects, 9 of which are included in the 56 projects immediately above. (See Figure 11.)







Stumps on newly acquired National Forest System lands at the Bureau of Reclamation Yakima Project. Stumps not only unsightly but before and as the water is drawn down they are a serious hazard to boater and fisherman.



The area after removal of stumps. Safer and better looking for outdoor enjoyment.



FIGHTING FOREST FIRES

1967 .....	\$30,000,000
1968 .....	5,000,000
1969 .....	4,275,000
Decrease .....	- 725,000

The decrease of \$725,000 is due to transfer of this amount to the regular Forest fire protection (Project 8) program to permit budgeting of fixed replacement costs of specialized firefighting equipment as directed in Senate Report No. 233, May 16, 1967, on Interior and Related Agencies Appropriation Bill, 1968.

By providing funds for Fighting Forest Fires (FFF) on National Forests and National Grasslands, this program supplements the regular Forest Fire Protection program financed from the National Forest Protection and Management activity of the Forest Protection and Utilization appropriation. Annual FFF expenditures are directly related to the severity of the fire season and the level to which Forest Fire Protection is financed. Past experience has shown that increased funding for the regular Forest Fire Protection program reduces FFF expenditures so the total fire protection cost is typically smaller.

Calendar Year 1966 Fire Season

Fire occurrence up. 1966 was a long and severe fire season and more area burned on the National Forests and Grasslands than any other year since 1960. Lack of winter moisture in many areas caused early spring fire dangers to reach levels not normally experienced until later in the season. As warm, dry weather prevailed across much of the West into the fall, critical conditions developed in California, the Northern Rockies, and the Pacific Northwest.

Major fires. The dry fuels enabled many fires to spread despite increased preparedness and prompt attack. One hundred ten reached more than 300 acres each, compared to an average of 63 for the previous 5 years. Largest was the Wellman Fire on the Los Padres National Forest in California. It started from an airplane crash in a remote area of rugged terrain and burned 93,600 acres before it was controlled. Six other major fires in the West burned between 10,000 and 20,000 acres each in areas protected by the Forest Service.

By the end of the season, 11,245 fires had burned 332,921 acres, compared to a 5-year average of 10,919 fires and 160,974 acres. Below normal lightning occurrence in the West helped to hold the total number of fires to less than average, but man-caused fires rose to the second highest number in the last 12 years -- 5,387. This increase is attributed to the long period of high fire danger, the rise in number of forest visitors, and the expansion of resource activity, rather than increased carelessness.





Calendar Year 1967 Fire Season

The National Forests and Grasslands of the West were threatened in 1967 by a fire crisis unmatched in recent times. Critical burning conditions coupled with repeated severe dry lightning storms produced disastrous fire situations in Oregon, Washington, and Idaho. This situation required bringing hundreds of supervisory personnel from other regions and organized crews from throughout the West.

The fire control effort in 1967 was the largest in Forest Service history. During the peak of fire activity in August and September, 2,500 fires occurred, burning a total of 105,000 acres. More than 15,000 firefighters led by 1,500 supervisory and specialist personnel were on the firelines. Thousands of volunteers were employed from local areas. Hundreds of bulldozers, ground tankers, pumps and many miles of hose were used. The use of aircraft in support of the ground attack was the largest ever. Through November 30 aircraft of all sizes, from large modern jets to small helicopter and reconnaissance planes, delivered thousands of men, 6.5 million gallons of chemical retardants and tons of equipment and supplies. Job Corpsmen fought many fires. Valuable assistance was provided by a Sixth Army Military Task Force, Montana and Idaho National Guard and Reserve Units. During period January through November 11,754 fires burned 208,679 acres in National Forest protection areas. Of these fires, 4,891 were man-caused, a significant reduction from the 5,387 experienced in 1966, and the previous 5-year average of 5,221, especially in light of the severity of the fire season. Though a serious loss, the 1967 burned acreage is well below that of even recent much less severe years. It demonstrates the great savings of valuable resources which can result from a modern, well-trained and equipped, fire control organization.

The 1967 fire emergency built up slowly. Spring fire conditions in the Eastern forests were near normal, while western areas, except Arizona and New Mexico, were unusually cold and wet. By June, however, the pattern in the West had begun to change, and warm, dry weather prevailed. The effects of the favorable spring were soon erased in many areas, particularly in the Northwest. Fuels became tinder dry as conditions of above normal temperatures and little or no precipitation continued through July and August and into early September. Temperature and rainfall records fell over a wide area. Portland, Oregon, went 71 days without measurable moisture; some other Oregon stations reported as many as 90 rainless days. Boise, Idaho, had 55 days with temperatures of 90 degrees or more during July and August. It was one of the Northwest's warmest and driest summers on record. Fire dangers stood at critical levels from early August into September.

Losses in the spring and early summer in the Southwest were 37,000 acres before July rains eased the situation. Elsewhere, burned areas remained low during this period. By early August, however, burned areas had begun to increase, as fires became harder to control.



Severe dry lightning storms hit the Northwest beginning on August 10. Within a week more than 1,500 fires had occurred in the dry National Forest areas of Oregon, Washington, Idaho, western Montana, and northern California. Major troubles developed in the Northern Region where 10 fires escaped early control efforts and quickly covered areas in excess of 100 acres.

A second period of dry lightning August 18-20 brought hundreds of new fires. Six in northern Idaho quickly grew to large sizes. Others were out of control on State and other Federal protection areas.

Subsequent storms the week of August 27 started new fires, with the Cascades of Oregon and Washington taking the brunt. Ten of these developed into fires of more than 100 acres in size. Man-caused fires also occurred daily, and a number in California and the Northwest grew into major fires. The threat of man-caused fires brought unprecedented closure of the forests in northern Idaho and western Montana on August 23, and in Washington and Oregon a week later.

The major fire of the season was the Sundance which, on September 1, swept onto the Kaniksu National Forest in Idaho from lands outside. Driven by gale force winds that sent it almost 20 miles in a 4-6 mile front, the fire burned 56,000 acres before it could be controlled.

Cooler temperatures and light showers finally brought relief to most areas on September 11. More than 3,500 fires occurred in Western National Forests, and 110,000 acres burned during the critical 30-day period. Fire forces were able to control most fires at small size, and only 46 escaped to burn areas of more than 100 acres.

Extreme fire dangers continued in southern California, and 3 major fires there burned in State and Forest Service protection areas at the end of November.





INSECT AND DISEASE CONTROL

1967 .....	\$12,363,000
1968 .....	11,776,000
1969 .....	11,969,000
Increase .....	+193,000

An increase of \$193,000 is needed as follows:

(1) \$106,000 to:

- (a) Expand general monitoring and intelligence on pest problems.
- (b) Provide additional experienced leadership and direction in planning and conducting control operations.

(2) \$87,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The increase would be used on State and private lands on a matching basis with cooperating States. Experience has shown that the sooner control action can be taken, once the need for control has been determined, the less the ensuing damage and cost. The increased funds will provide pest survey information for an additional 15 million acres of this important segment of non-Federal forest lands.

Insects and diseases are the major causes of unregulated drain on the Nation's forests. They occur in all forest types, on lands of all ownerships, and in all sections of the country. Some of them kill trees outright. Others exert their toll by stripping the leaves and needles, killing the shoots and terminals, infecting or infesting the roots and stems, or by stunting, decaying, staining, deforming or in other ways degrading the value of trees.

These annual losses, amounting to approximately 2.4 billion cubic feet of growing stock, including 1.76 billion cubic feet of commercial sawtimber, cause a severe impact on the wood-using industries of the Nation; they mar the natural beauty of the countryside; impair the habitat for fish and wildlife; increase the hazard of forest fires; and degrade valuable sites planned and used for outdoor recreation.

The objectives of the forest pest control program are to:

- (1) Forestall any increase in the damage or loss caused by insects and diseases on lands of all ownership in all sections of the country.
- (2) Reduce the adverse impacts on timber, natural beauty, wildlife habitat, outdoor recreation and the hazard of conflagrations that result from pest depredations.



- (3) Assist other programs to effectively maintain the quality of our environment.

This is in accordance with the Department of Agriculture's goal of providing maximum benefits from the multiple values of the forest resource for all citizens.

The onset, severity, frequency, scope, and location of pest problems fluctuate widely from year to year. Accordingly, reliable predictions of specific needs for prevention and suppression cannot be made. However, the estimated pest control effort for fiscal year 1969, as compared with 1967 and 1968, is as follows:

<u>Item</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
	(In thousands)		
(1) Administration, detection, and biological evaluation .....	\$3,866	\$3,775	\$4,799
(2) Methods improvement .....	781	796	801
(3) Bark beetle control .....	2,447	3,029	2,055
(4) Defoliator control .....	1,987	1,939	1,850
(5) Other insect control .....	70	71	180
(6) Blister rust control .....	2,758	1,703	1,715
(7) Oak wilt control .....	74	75	76
(8) Dwarfmistletoe control .....	280	294	390
(9) Other disease control .....	<u>100</u>	<u>94</u>	<u>103</u>
Total .....	12,363	11,776	11,969

This input in surveys and control of forest insects and diseases will forestall additional damage and loss to the forest resource and reduce the adverse impacts these pests cause.

#### Examples of Recent Accomplishments

Blister rust control program modified and costs reduced in the Inland Empire. A reevaluation of the longstanding program to control blister rust in the white pine forests of the Inland Empire showed that the rust has been establishing itself in young stands in that area at an average rate of 3% per year. This finding indicated that it was no longer practical to attempt



to carry the young trees through to merchantable size. The limited success of the protection program, coupled with rising costs, led to the decision to curtail efforts to eradicate currants and gooseberries as a means of control.

Systematic search for trees resistant to white pine blister rust intensified. Curtailment of the longstanding program to control blister rust in the white pine forests of the Inland Empire increased the urgency to broaden the genetic base for breeding trees resistant to the disease. Accordingly, a diligent search of selected stands long exposed to the rust was begun during the year to locate candidate trees for use in the rust-resistant breeding program.

Maintenance control operations minimize damage from white pine blister rust in the Lake States and the Northeast. The cooperative blister rust control program in the Lake States and the Northeast was continued during the year to prevent rust infection on some 15 million acres of protected stands. Surveys were also continued to determine areas needing additional control treatment and to plan future control action. Gooseberry and currant bushes, the alternate host plant for the disease, were removed from 137,000 acres and infected branches were pruned from 1.3 million trees on 8,500 acres. The program provided 37,700 man-days of employment in Lake States and Eastern rural communities.

Damage by dwarfmistletoe greatly reduced in young pine stands in western States. Long-term protection of young pine stands against infection by dwarfmistletoe was accomplished by removing infected overstory trees on 34,000 acres of National Forest land in nine western States. In addition to the control work, which was accomplished largely through timber stand improvement practices, surveys to guide future control operations were completed on an additional 180,000 acres.

Improved methods increase effectiveness and reduce costs in forest insect surveys. Aerial color photography to delimit the scope and intensity of bark beetle infestations is replacing the costly work previously required in ground survey operations. The aerial photographs permit easy recognition of the various forest types thereby increasing the accuracy of estimates of pine acreage affected by the beetles.

Costly ground surveys normally are required to find the early stages of Engelmann spruce beetle infestations in the spruce stands in the western States. New surveillance standards for susceptible areas were developed during the year which eliminate unproductive efforts previously used to guard against incipient infestations developing unnoticed.



Parasitic wasps hold high promise for control of larch casebearer and larch sawfly. Parasitic wasps of proven effectiveness for control of the larch casebearer and larch sawfly in Europe are being used to control these two forest pests in the United States. About 575,000 wasps parasitic to the larch casebearer were widely distributed in infested stands of Idaho, Montana, and Washington. A closely related parasite of the larch sawfly was released in large numbers in Maine. It is hoped that these wasps will multiply so their progeny can be collected and distributed in other affected areas in the years to come.

Large supply of virus propagated for use in controlling European pine sawfly. Over 250,000 young European pine sawfly larvae were collected from scattered areas in the Lake States and Northeast for use in propagating a virus that will eventually be used in biological control of the pest. The larvae were assembled at a central laboratory where they were exposed to the virus infection. As the larvae grew and succumbed to the disease, their bodies were processed to recover the contained virus. A portion of the supply of virus propagated during the year will be used to demonstrate the safety of its use as a biological control agent.

Timely spraying in Maine protects valuable forest resource. A virulent outbreak of spruce budworm that threatened high value spruce and fir timber on 100,000 acres in Maine was suppressed by aerial application of insecticides. Spray operations included elaborate precautions to guard against possible adverse effects to fish and wildlife. The basic value of the resource saved was estimated at \$6 million. It is only a fraction of the true worth of these trees that provide local employment in the woods and mills and products worth \$128 to \$170 million. Eight mills, employing 2,000 people, utilize timber from the threatened area.

Beetle control program protects Nebraska's manmade forest. A sudden bark beetle outbreak in the wake of a disastrous forest fire threatened the highly prized pine plantations on the Bessey District, Nebraska National Forest, near Halsey, Nebraska. The outbreak was promptly quelled by the combined efforts of Job Corpsmen, National Guardsmen, foresters and local labor. Approximately 52,000 trees were treated on about 12,000 acres in two weeks' time.





ACQUISITION OF LAND, WEEKS ACT

1967 .....	\$2,480,000
1968 .....	1,800,000
1969 .....	1,800,000

No program increase is proposed.

The acquisition of key inholdings within the National Forests and the National Forest purchase units becomes increasingly urgent as the demands upon wildlands and farm lands for highway construction, industrialization and summer home development increase. The development program for the National Forests recognizes the need to ultimately acquire about 7,000,000 acres of private inholdings in need of land rehabilitation. This 10-year program (1963-1972) has an objective to purchase 967,000 acres of watershed and timber production lands. Included are lands depleted by repeated fires, poor logging practices, clearing and cultivation of steep and erodible mountain lands, disturbed mineral exploitation areas and submarginal or marginal farms that should be removed from farming operations and managed for timber production and/or grazing. These are lands located primarily in economically depressed areas. Sound management will contribute to:

- (1) Stabilization of the local economy.
- (2) Beautification.
- (3) Prevention of stream pollution in rural America.

Lands primarily valuable for recreation are not included in this program. Acquisition of such lands are financed under the Land and Water Conservation Fund Act program.

The \$1.8 million included in the fiscal year 1969 estimate will be used to acquire an estimated 29,000 acres in the Redbird Purchase Unit in eastern Kentucky at a cost of \$1,120,000. The remaining \$680,000 will be used to continue the acquisition programs in the remaining purchase units in the eastern United States, plus a minor program in Nebraska. The primary emphasis is given in this part of the program to the National Forests in Illinois, Indiana, Ohio, Virginia, and West Virginia.

See the tabulation at end of this section for more detailed information on actual and planned accomplishments in fiscal years 1967 and 1968.

Examples of Recent Accomplishments

In 1967 a total of 181 tracts were contracted for purchase under authority of the Weeks Act using regular appropriated Weeks Act funds. These cases involved the acquisition of 66,790 acres at a total cost of \$2,479,698.



These transactions involve lands suited to timber production and watershed protection in areas where National Forest ownership needs to be consolidated or extended to facilitate these programs. Many of the smaller parcels, 20-40-80 acres in size, are purchases made at a price equal to or nearly equal to the cost that would otherwise have been incurred to survey, post, and mark the National Forest boundary surrounding the property.



## WEEKS ACT PURCHASES 1967-1969--continued

State and Forest	FY 1967 Actual			FY 1968 Estimated			FY 1969 Estimated		
	Options:	Acres	Obligation:	Options:	Acres	Obligation:	Options:	Acres	Obligation:
Oklahoma - Ouachita .....	3:	280:	5,120:	:	:	:	:	:	:
South Carolina - Sumter .....	2:	121:	12,561:	:	:	:	2:	156:	19,000
Tennessee - Cherokee .....	2:	183:	24,000:	:	:	:	6:	500:	23,000
Vermont - Green Mountain .....	3:	263:	10,412:	:	:	:	3:	263:	9,000
Virginia - George Washington ...	3:	188:	9,255:	2:	1,970:	56,000:	6:	315:	19,000
Jefferson .....	1:	243:	14,580:	:	:	:	3:	675:	28,000
West Virginia - Monongahela ....	2:	255:	13,000:	10:	2,000:	94,000:	2:	254:	56,000
Wisconsin - Chequamegon .....	2:	475:	9,417:	5:	1,000:	19,000:	2:	475:	11,000
Nicolet .....	1:	484:	11,750:	15:	1,500:	19,000:	1:	484:	11,000
Total .....	181:	66,790:	2,303,964:	251:	56,920:	1,640,000:	187:	46,409:	1,680,000
Surveys and related acquisition costs .....	:	:	175,734:	:	:	160,000:	:	:	120,000
Total obligations .....	:	:	2,479,698:	:	:	1,800,000:	:	:	1,800,000









TIMBER MANAGEMENT RESEARCH

1967 .....	\$8,377,000
1968 .....	8,947,000
1969 .....	9,157,000
Increase .....	+210,000

An increase of \$210,000 is needed as follows:

- (1) \$77,000 at Bend, Oregon, for research on faster growing, better quality pines to strengthen the resource base for community development.
- (2) \$46,000 at Athens, Georgia, to strengthen research on breeding and culture of high-value hardwoods in the addition to the Forestry Sciences Laboratory to be completed about August 1968.
- (3) \$87,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Timber management research develops cheaper and more reliable methods of establishing and tending forests to produce timber and timber-related products. It deals with reproducing forests both naturally and artificially, with intensive cultural measures for increasing the yield and improving the quality of forest stands, with methods for evaluating and increasing the productive capacity of forest soils, and with stand treatments to perpetuate valuable species. It includes breeding trees for rapid growth, good form, desirable wood qualities, and pest resistance. It includes research in such timber-related crops as maple sap, naval stores, Christmas trees, and decorative and medicinal plants which provide supplementary income to small landowners in rural areas. The program develops better techniques of measuring forest trees and stands, more reliable predictions of future growth and quality of forest products, and improved techniques to weigh alternatives in management of large public and private timber holdings. It develops the silvicultural base for multiple use management of forests to produce various combinations of range, water, wildlife, recreation, and timber. It includes developing more effective methods of planting and tending shelterbelts and other special-purpose tree plantings to ameliorate the local climate and improve the quality of the environment of rural and urban communities. It provides the scientific basis for future breakthroughs in practice by developing fundamental knowledge of tree physiology, mineral nutrition, and soil requirements for highest forest production.

Examples of Recent Accomplishments

Fertilizers increase tree growth in 3 regions. Fertilizers, of the proper kind and amount, can increase tree growth. On irrigated pumice soils in Oregon 200 pounds of nitrogen per acre increased by 6% the height of 7-year-old ponderosa pine and 400 pounds per acre increased height 19% over a 6-year period. On Sharkey clay soils in Louisiana, applications of nitrogen, phosphorus, and potassium almost doubled growth of 20-year-old sweetgum trees over a 5-year period. On Sawyer sandy loam soil in Arkansas two



annual applications of 100 pounds of nitrogen fertilizer per acre stimulated growth of 8-year-old loblolly pine, but the effect of the fertilizer lasted only one year. A major research job is to determine the kind and amount of fertilizer needed for trees on different soils.

Early harvest of sprouts increases pulpwood yield. Repeated machine harvesting of sprouts from densely planted and rapidly growing young stands of hardwoods is a new concept in production of pulpwood. Near Athens, Georgia, studies suggest that 2- or 3-year-old sycamore plantations can yield annually 12 to 15 tons pulping material per acre. In volume, this is equivalent to about 5 cords of pulpwood per acre per year, more than twice the yield from present forest stands. After an inexpensive harvest by machine, the young sycamores promptly sprout and grow a new stand. It is believed the use of this new concept can greatly reduce the cost of producing hardwood for pulping. This new development was evolved cooperatively by the Forest Service, the University of Georgia and the Georgia Forest Research Council.

Partnership between alder trees and fungi established. A PL-480 project in Finland accomplished the difficult task of isolating from root nodules and soil of alder stands several fungi that decompose organic matter. This partnership increased soil nitrogen by 100 pounds per acre resulting in a 20% increase in height growth of associated conifer seedlings. This finding can apply to many areas in the United States where natural alder grows and to reclaimed strip-mined lands planted to European alder.

More maple sap produced if taphole depth controlled. Taphole depth used in tapping sugar maple is determined mainly by custom. Studies in Vermont show that sap yields can be raised by at least 10% by deeper tapping. Careful regulation of taphole depth is needed to account for such factors as bark thickness of individual trees.

Shelterbelts respond to good care. Studies in the central Great Plains show that shelterbelts can be made more effective through good management practices. Winter density of belts can be greatly improved by cutting out excess rows of hardwoods that overtop evergreens. The evergreens, mainly pine and cedar, respond rapidly with increased vigor and growth rate. Density of shelterbelts near the ground, often impaired by past grazing, is also improved by cutting out excess hardwood rows. The cut stumps sprout, and the adjacent hardwoods branch out closer to the ground.

Growth study shows potential gain of 50% in Douglas-fir yield. Recent growth studies show that only 70% of the productive potential of Douglas-fir timber sites is realized when stands are not managed. The other 30% of potential yield is lost, mainly through suppression and death of trees in overcrowded stands. Thus, thinning and other silviculture treatments of growing stands might increase yields by nearly 50%.



Yield predictable for planted walnut. Growth and yield of walnut groves in the prairie region can now be predicted from a yield table resulting from measurements of older plantations. Yields on best sites at age 60 are 10,000 to 13,000 board feet per acre.

Black walnut timber culture stressed at conference. The supply of high-quality black walnut timber is shrinking and still the demand increases. (See Figure 15.) A workshop on the culture of black walnut was held in Carbondale, Illinois, to bring together the information now available on the growing of walnut, and to stress the high priority research needs. The workshop was sponsored by the Forest Service, the American Walnut Manufacturers' Association, and the Forestry Department of the Southern Illinois University. Proceedings of this conference are much in demand, for they summarize present knowledge on the culture, protection, and improvement of America's prime hardwood.

Productivity of lodgepole pine stands can now be predicted. One of the most extensive timber types in the West is lodgepole pine but productive capacity of the species has been difficult to determine because its growth in height and diameter is strongly influenced by stand density. A West-wide study showed that productivity can be estimated from the relationships of height to age and number of trees per acre. With this new information, forest managers are more easily able to identify stands that justify further investments.

Long fibers and rapid growth are favorably related in cottonwood. Research at Stoneville, Mississippi, shows that in cottonwood, our fastest-growing tree on high-quality bottomlands, long fibers needed for pulping are associated with rapid growth. Wood density is not closely related to growth rate or fiber length; thus breeders can now select more effectively for high density and rapid growth and at the same time reap the benefits of increased fiber length.

More cottonwood cuttings develop roots after flower buds removed. Propagation of mature cottonwood trees is desirable because selection for superior strains is more reliable than in young trees. However, rooting of cuttings from mature trees is more difficult. Greenhouse tests at Stoneville, Mississippi, have determined that rooting success can be substantially improved by removal of flower buds from cuttings, and by treating cuttings with hormones.

Animal damage to pine seedlings reduced. Browsing by game and livestock causes extensive damage to natural and planted ponderosa pine seedlings. Near Redding, California, a planting of forage crops in mixture with pine substantially reduced damage to tree seedlings. Deer and cattle ate large amounts of the planted shrubs, grasses, and legumes, apparently in preference to ponderosa pine seedlings. Simultaneous planting of pine and browse species appears practical when reforesting land that has a high population of game or livestock.



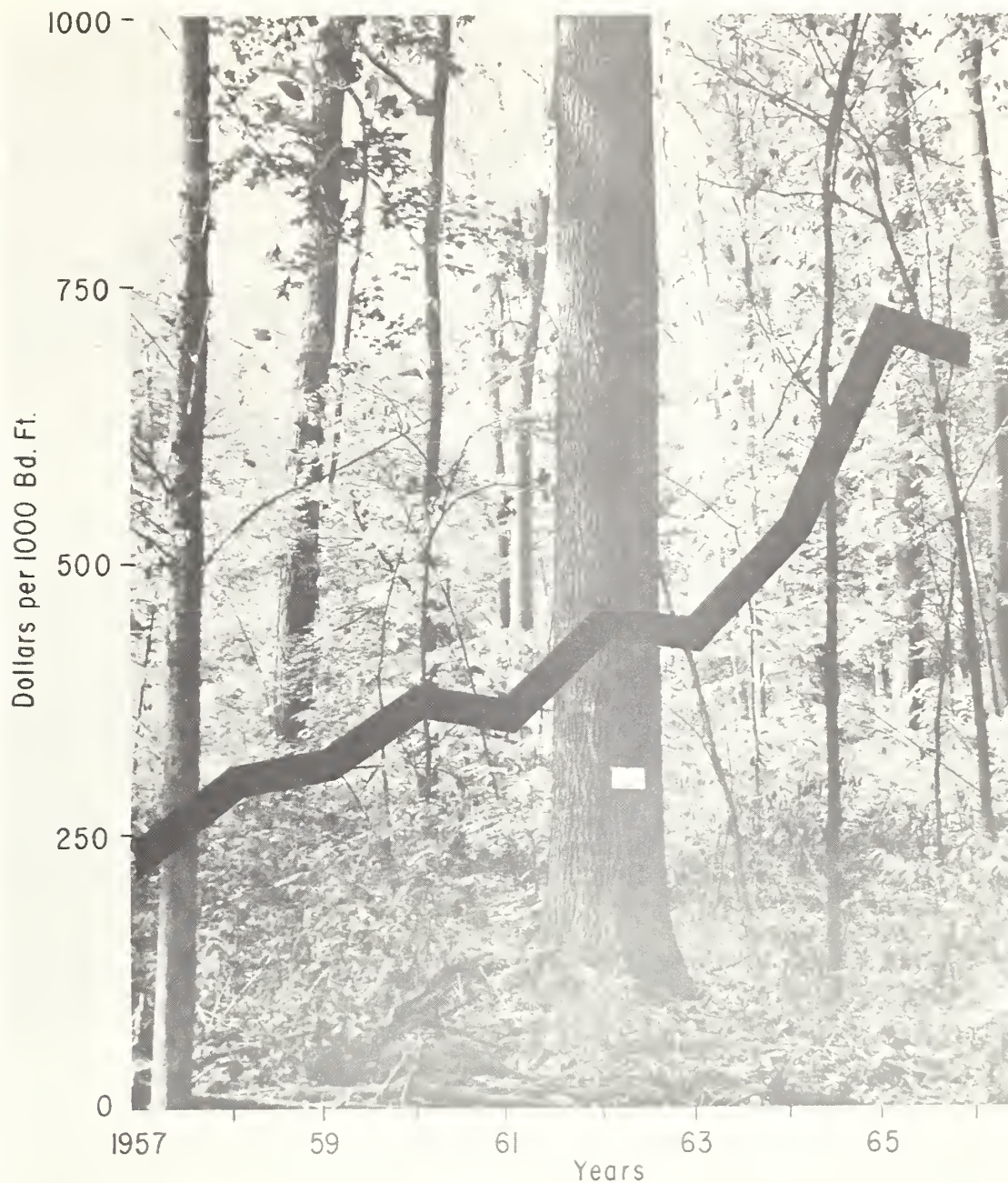


Seed moisture content is key to long storage. Research at Macon, Georgia, showed that longleaf, slash, loblolly, shortleaf, and white pine can be stored up to 5 years if the seed moisture content is kept at 12% or less. At this moisture content storage temperature may be set at any level between  $-5^{\circ}$  and  $35^{\circ}\text{F}$ . These limits satisfy requirements of all five species, eliminating the cost of separate storage facilities.

Artificial ripening of cones eases harvesting bottleneck. In northern Idaho, the period when grand fir cones can be picked, between natural ripening of the seed and dropping of seed from the cones, is only about 1 month long. This short collecting season limited harvests of cones. Research shows that cones picked 2 to 4 weeks before seed ripening would mature normally when immersed in a nutrient solution. Therefore, the cone collecting season can be nearly doubled at little additional cost enabling nurserymen to take full advantage of the infrequent good cone crops.







### TREND IN VALUE OF WALNUT VENEER STUMPAGE (OHIO)

Sharp increases in price of walnut timber reflect increasing shortage of high-quality hardwoods and need for research to raise productivity and quality of hardwood resource.



WATERSHED MANAGEMENT RESEARCH

1967 .....	\$3,439,000
1968 .....	3,793,000
1969 .....	3,944,000
Increase .....	+151,000

An increase of \$151,000 is needed as follows:

- (1) \$114,000 to reduce water pollution through strengthening research on sedimentation at the Hydrology Laboratory in Oxford, Mississippi, to be completed about August 1968. This research will yield improved practices to reforest eroding, abandoned farm lands and will enhance deteriorated rural environments. Included is \$19,000 for additional research aimed at increasing subsurface water supplies in the southern Coastal Plains.
- (2) \$37,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

By the year 2000 we may be getting fresh water from the sea and wringing more drops from the clouds, but forest lands will continue to be the best sources of water. Forested watersheds deliver nearly three-quarters of the 270 million gallons we use each day in the United States. And this use will likely triple as we enter the next century. Other alternatives will certainly be called upon to help meet additional water requirements, but there will still be mounting pressures on forested watersheds to yield maximum amounts of clean water. Thus, it is paramount that we continue to improve management of these lands.

During fiscal year 1969 research will concentrate on techniques for increasing streamflow from forests and curtailing sediment along with other forms of pollution which lower the quality of water. Activities will include research to:

- (1) Increase streamflow from alpine snowfields in Colorado, from timbered slopes of the Rocky Mountains, Sierra Nevada, and Cascade Range, and in the eastern hardwoods of New England and southern Appalachian chain.
- (2) Control sediment in salmon spawning streams of Alaska, Washington, Oregon, California, and interior reaches of the Columbia River.



- (3) Combat pollution of soil and water by chemicals introduced into the forest environment in the Pacific Northwest.
- (4) Rebuild protection against erosion on severely depleted rangelands of Utah, Arizona, and New Mexico.
- (5) Rehabilitate strip-mined areas of the Appalachian Mountains to curtail stream pollution and restore a productive and pleasing environment.
- (6) Improve management of water supplies and promote better timber growth in bogs of northern Lake States, in wetlands of the southeast Coastal Plains, and in shallow groundwater zones of the southern Coastal Plains.

#### Examples of Recent Accomplishments

Cutting Douglas-fir doubles summer and fall streamflow. In 1965 and 1966 clearcutting a 237-acre watershed in the Oregon Cascades, increased streamflow to twice as much as expected without cutting (Figure 16, top). Results of the study are significant because they indicate that planned logging can help alleviate some of the critical water shortages that occur each fall in the Pacific Northwest. Water increases measured in this experiment were enough to supply daily domestic needs for about 212 people in the dry summer and fall of 1966.

Putting abandoned coal-haul roads "to bed" reduces erosion. A study in eastern Kentucky showed that erosion from coal-haul roads can be kept in check by treating them immediately after they are abandoned. Best effect is obtained by providing for good drainage on the road surface and by stabilizing roadbed and banks with grass and trees. Without treatment, almost 4" of soil will erode each year from road surfaces and road banks.

Roads with inadequate cross drainage affect movement of water in wetlands. More than half of the 70 wetland roads observed in a northeastern Minnesota survey showed timber killed or weakened by a rise in the water table caused by the damming effect of the road. Similar road crossings have affected thousands of acres of wetlands in northern Minnesota. They result in loss of valuable timber and degradation of aesthetic quality of roadside landscapes. The problem can be largely overcome by using larger culverts and improving methods of placement.

Eliminating grazing in the summer reduces erosion. Where summer grazing was eliminated, soil loss decreased about 70% in the Rio Puerco drainage of New Mexico. During this 5-year study, animals were fenced out of the experimental grazing area each year from the beginning of April until the end of October. Before summer exclusion of livestock, average soil loss was 0.7 acre-foot per year. After fencing and elimination of summer grazing, the amount of ground covered by plants was doubled, and average soil loss declined to 0.2 acre-foot per year.





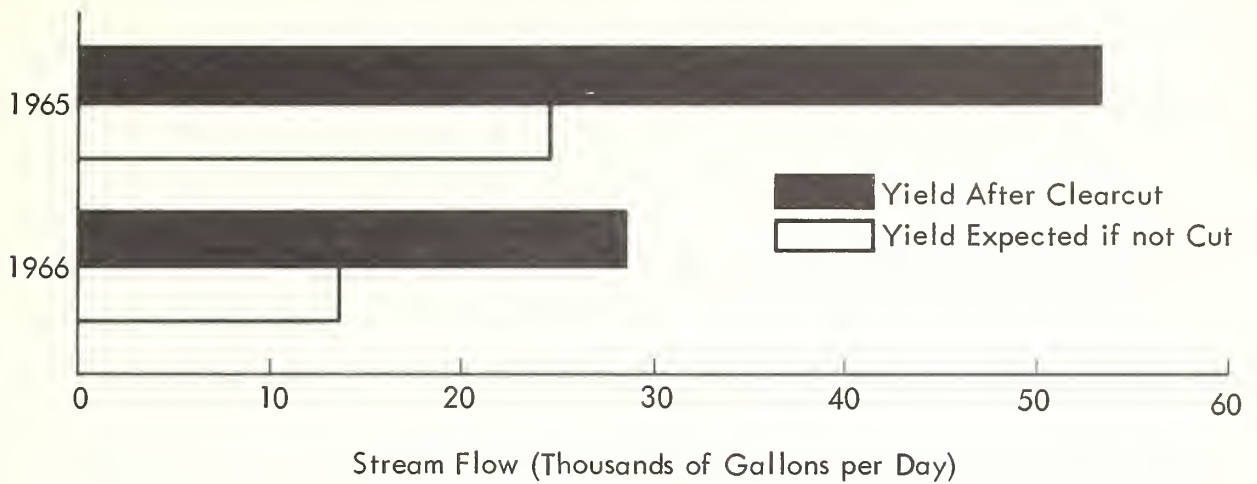
Planted pines reduce streamflow. Reductions in streamflow occurred in the Appalachian Mountains when native hardwoods were replaced by pines. At Coweeta Hydrologic Laboratory in North Carolina, a white pine plantation is using more water than the hardwood forest it replaced. In 1957, when all hardwood trees and shrubs on a 40-acre watershed were cut, annual water yield increased about 6.5 million gallons. But now with a 10-year-old pine plantation covering the watershed, annual water yield is approximately three million gallons less than would have occurred if hardwoods had remained. Conversion from hardwoods to pines in southwestern United States is commonly done to improve timber values. In areas where water supplies are critical the practice appears to conflict with the needs of water users.

Conversion of brush to grass may increase soil slippage. Soil on slopes greater than 80% in southern California are prone to slide downhill when natural chaparral cover is converted to grass. Slipouts were observed in over 1,000 locations on 700 acres of San Dimas Experimental Forest following heavy rains in 1965 (Figure 16, bottom). All were on steep slopes and most occurred on areas that had been converted from brush to grass following a wildfire in 1960. It appears that the decayed roots of the killed chaparral no longer anchor the soil. On slopes over 80%, a dense cover of deep rooted growth must be maintained to hold soil in place.





Timber cutting adds to critical summer water supply from a 237-acre watershed.



Conversion from brush to grass on this steep slope caused a soil slip.



RANGE MANAGEMENT RESEARCH

1967 .....	\$1,294,000
1968 .....	1,267,000
1969 .....	1,385,000
Increase .....	+118,000

An increase of \$118,000 is needed as follows:

- (1) \$104,000 to begin research at Logan, Utah, on changes in vegetation resulting from weather modification. Key plant species and communities will be observed in exclosures established inside and outside of areas subjected to weather modification activities. These observations will be related to changes in weather characteristics altered by modification practices.
- (2) \$14,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Range livestock grazing constitutes the largest single use of land in the United States. About 950 million acres are involved, and it is largely on these extensive areas that most of the calves and lambs are produced for the dinner tables of the Nation. Inasmuch as forage production is far below potential on much of this area, the key to continued or expanded use lies in the development of sound principles of management from firmly established research findings.

The Forest Service range research, located in the South and the West will continue to seek the most efficient and practical means to improve the productivity of the grazing resource in full recognition and coordination with other uses. This goal is being met by current research that encompasses a variety of activities including:

- (a) Determination of management systems, grazing intensities, and proper coordination with other uses for the many different range types and conditions.
- (b) Development of range improvement measures such as conversion of low-value vegetation to desirable forage plants through prescribed burning.
- (c) Determination of characteristics, responses, and requirements of range vegetation.
- (d) Classification of range condition and trend through studies of plant ecology.



In the past year, findings from 18 projects in range management research have been published in 56 articles and scientific publications. The projects have 169 active studies underway. During the past year, 20 studies were completed, and 31 new studies were begun. The results of these studies primarily benefit rural residents and their communities, but the Nation as a whole benefits as well.

#### Examples of Recent Accomplishments

Increased profits from grazing bluestem forage on southern forests. In Louisiana requisites for management of cattle and bluestem forage in long-leaf-slash pine forests are being developed. These include:

- (a) Feeding supplements to compensate for deficiencies in native range forage.
- (b) Using Brahman-cross cows.
- (c) Improving forage quantity and quality through controlling tree density and prescribed burning.
- (d) Grazing at proper intensity.
- (e) Regulating distribution, numbers, and season of cattle grazing.

When properly managed, calf crops exceed 75%; weaning weights of calves are more than 400 pounds; and production of timber is unimpaired. Annual profits from beef may reach \$28 per cow, with an annual net return of 10% on investments. This is in contrast to marginal returns from operations on unmanaged southern forest ranges where calf crops may average as low as 35% with weaning weights of about 200 pounds.

Increased cattle gains on high mountain ranges. Periodic rest during the growing season coupled with 20% herbage removal by grazing of Idaho fescue gave the highest steer gains (2.2 pounds per day) on Wyoming mountain grasslands. Season-long use of a similar range stocked comparably was next best. A third range stocked one and one-half times as heavy and managed on the same periodic rest system produced one-third pound less daily gain than its more lightly grazed counterpart.

A quick way to weigh cattle on remote ranges. Equipment that will weigh range cattle without disturbing them has been developed at the Santa Rita Experimental Range in cooperation with the University of Arizona. A simple, inexpensive platform supported by four load cells is connected to a battery-operated chart recorder. The platforms are placed where cattle cross them going to water (Figure 17). The load cells respond to weight without change in the appearance of "feel" of the platform. The load cells can be moved easily from one platform to another.





Gearing range management to forage physiology. Cycles of carbohydrate accumulation in key Northwest forage species provide a good physiological basis for range management. Elk sedge, for example, has stored only about half of its total carbohydrates by mid-June, and grazing before this period adversely affects this species. In this and other key species there was almost no difference in carbohydrate accumulation at the end of this annual growth cycle if they had been subjected to light and moderate grazing; however, under heavy grazing the accumulation was definitely less. There was a tendency for greater accumulations on ranges periodically rested than those under season-long grazing.

Lambing on crested wheatgrass relieves grazing pressure on native range. Seeded wheatgrass can be effectively used for "lambing" range in northern New Mexico. Production of the crested wheatgrass was not adversely affected by intensity of use during the lambing period. The green, nutritious grass benefited the ewes and lambs and furnished a much needed supply of forage at the critical spring period when native range is in short supply.

Improving wiregrass forage quality in pineywoods. Abundant wiregrass forage is produced on southern forest ranges, but nutritive quality is low except for brief periods following burning. To complicate this problem, the South has 15 million acres of newly planted pines in which burning must be deferred. Research in Florida indicates that forage production of pineywoods may be greatly improved. Limited site modifications help, such as, chopping of raw palmetto or disking and applying rock phosphate. Introduction of improved shade tolerant forage species into managed plantations increases forage. These findings help integrate tree growing with beef production, and they provide landowners with additional income opportunities.

Grazing a seeded-native range combination proves profitable. A system of grazing both seeded and native pine bunchgrass range in Colorado provided better cattle nutrition and faster weight gains than grazing native range alone. Calves from this combination grazing weighed 32 pounds heavier than from native range alone. The gross return per calf exceeded the return on calves from native ranges by \$7.70.







Four load cells under this platform and a battery operated recorder provide a quick and inexpensive way to weigh cattle on remote ranges .



WILDLIFE HABITAT RESEARCH

1967 .....	\$912,000
1968 .....	935,000
1969 .....	989,000
Increase .....	+54,000

An increase of \$54,000 is needed as follows:

- (1) \$44,000 to strengthen the research effort on wildlife habitat on the east side of the Cascade Mountains of Oregon and Washington. This research will be housed in a new laboratory to be completed about September 1968, at LaGrande, Oregon. The research program is concerned primarily with food supply and cover requirements of deer and elk and with maintenance of large herds of healthy animals to help meet the growing recreational demand of the area.
- (2) \$10,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The Nation's forest, range, and associated waters are the habitat for millions of big-game animals and countless other species of wildlife including song-birds, waterfowl, and fish. These wildlife resources provide recreation, income, and beauty to a Nation with rapidly increasing needs for wildlife resources. Demands for hunting and fishing, are increasing sharply--especially on public lands. National Forests alone contain over 180 million acres of terrestrial habitats, 80 thousand miles of fishing streams and nearly two million acres of lakes. These forest, range and associated aquatic habitats can be maintained and greatly enhanced for fish and wildlife species only if the delicate balances and subtle changes in the plant and animal communities can be understood. Although habitat conditions on some forest and range areas are far below their potential capacity, their productivity can be materially increased through development and application of new wildlife habitat research findings. Furthermore, some low-producing areas are stark examples of land abuse. Poor logging practices, fire, or overuse by livestock or big game represent a travesty in conservation, and a challenge to habitat research.

Knowledge to increase habitat productivity is needed by the full spectrum of land owner-managers from the small woodlot operation to extensive commercial and public properties. Wildlife resource values are rising very sharply and returns to private landowners through sale or lease of hunting and fishing privileges has become a substantial form of income. The wildlife





habitat research program of the Forest Service involves active cooperation. Federal and State fish and game agencies and educational institutions help meet the most critical knowledge deficiencies. It cannot, at its present level, adequately serve the important needs of all segments. But it seeks solution to the most urgent problems in managing wildlife habitat of forests, rangelands, and associate water areas. It will develop critically needed interim practices, while long-range multiresource solutions are being developed.

Special practices will be developed to increase game food and cover plants by seeding, planting, burning, spraying, and fertilizing. Competition between wildlife and livestock will be studied to find ways of integrating wildlife and livestock grazing. Likewise, effects of silviculture and timber harvesting on food and cover plants used by wildlife will be determined. Improvement of fish habitat will be secured through regulation of water temperatures, creation of gravel spawning beds, stabilization of stream channels, and restoration of riparian vegetation.

Fourteen projects conduct the field research of the Forest Service program of wildlife habitat research. A total of 115 active studies is underway, and in the past year project professionals published 46 articles and scientific papers.

#### Examples of Recent Accomplishments

Small clearcuts provide best habitat for white-tailed deer. Clearcuts in the southern Appalachian Mountains provided more than 900 pounds of browse per acre for white-tailed deer and over 6,000 seedlings of valuable hardwood timber species. Prior to the timber harvest browse production was less than 50 pounds per acre. Studies showed that clearcuttings should range from 20 to about 55 acres in size to best serve wildlife needs.

Openings of greater size produced more browse than deer could use. Frequent small cuttings tend to stabilize food and cover, to increase needed "edge" for small game, and to provide good hunting areas where game can be more easily harvested.

Forage variety important on winter range. Mule deer grazed a wide assortment of species planted for winter game range restoration purposes in Utah. Surprisingly, highly preferred species like bitterbrush, cliffrose, and mountain mahogany were not essential for maintenance of a healthy game herd where there was a good variety of less preferred species and abundant stands of big sagebrush.

Cattle and big game interact in forage use. Increasing use of range forage by cattle resulted in decreased use by elk in the Pacific Northwest. In contrast, mule deer were little affected by intensity of cattle grazing.



In addition, ranges under light, season-long grazing by cattle apparently were preferred by elk. Under heavy cattle use, elk preferred pastures grazed on a deferred-rotation system, but mule deer showed only a slight preference for this system.

Grazing helps establish bitterbrush. Cattle grazing reduced perennial grass competition in plantings on Great Basin deer winter ranges and created a better environment for bitterbrush seedling establishment. One of the keys to this approach is the time when cattle use grass or bitterbrush. Cattle use was practically nil before bitterbrush started growth in April. By early June, almost half of their grazing was on bitterbrush, but it decreased erratically thereafter. Only about one-fourth of the animals' grazing time was spent on bitterbrush by the end of growth in September. It appears that bitterbrush plantings should only be grazed in the fall until they become well established.

Waterfowl favored by livestock watering ponds. More than 90,000 stock watering ponds in South Dakota provided excellent waterfowl habitat. Each of 13 selected ponds, visited 15 times during the April to October ice-free period of 1966, were used by an average of 9 individual waterfowl and shore-birds. Collectively, the 13 ponds supported approximately 25,000 bird-days for 29 species. Consequently, ranchers have created much waterfowl habitat and better hunting by development of stock watering ponds.

Overcoming deer food deficiencies of Arizona chaparral. In the Arizona chaparral, deer food deficiencies occur during the May to June drought period. This is after spring growth of shrubs has ended and before summer growth of herbaceous plants begins. During this period, white-tailed deer obtain needed proteins and calcium from fire sprouts of shrub live oak, birch-leaf mountain mahogany, and Wright silktassel (Figure 18). To help sustain deer herds, managers of chaparral lands should create small openings with chaparral sprouts. Greatest attention should be given to mountain mahogany, for it is preferred by the deer.







Many browse plants, like Wright silktassle, sprout profusely after prescribed burning and produce a nutritious food for big-game animals.



## FOREST RECREATION RESEARCH

1967 .....	\$479,000
1968 .....	828,000
1969 .....	894,000
Increase .....	+66,000

An increase of \$66,000 is needed as follows:

- (1) \$60,000 to initiate additional studies on recreation demands and economic opportunities in the Central States, Lake States, and other parts of the East. These studies will investigate the profit potentialities of privately owned forest recreation enterprises in an effort to improve the income of rural communities in forested areas. The investigation will include the interrelation of privately owned and public recreation facilities and how they may supplement each other.
- (2) \$6,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Forest recreation research will continue to seek and provide information to public and private land managers and landowners which will help insure sound use and development of resources and programs for forest and related outdoor recreation. During the coming year research will stress the private sector. How can private enterprise best fit into the overall recreation picture? How can this and related research make a significant contribution to the quality and economy of rural America? Landscape management research will emphasize broad landscapes. How can recreation use, intensive resource management, and natural beauty be combined? Research will continue to develop efficient systems for estimating and measuring current recreation use. Research on wilderness-type areas will emphasize better understanding of ecological succession, ways to disperse use, and ways to restore, maintain, and use fragile wilderness sites. Research to better understand recreation visitors' interests and needs, trends and changes in use, and user impacts upon forest resources will be strengthened.

### Examples of Recent Accomplishments

The Western ski market is big business, and business is good, particularly for rural communities. A study of the ski industry and skiing conducted in cooperation with the Department of Commerce in the 12 western States (including Alaska) showed that skier visits totaled 1.4 million in 1955 and 4.3 million in 1964, and that 12.1 million are expected by 1976. The skier market is virtually untapped, but its potential to rural America is great.





Although only 1% of the people in the West skied in 1964, they spent \$115 million, of which \$88 million was spent while on skiing trips. More than 15,000 man-days per week were required for operating lifts and tows, for slope maintenance, and for managerial and clerical work. Wages totaled \$6 million, an average of \$31,000 per ski area.

Privately owned campgrounds--managerial and physical variables significantly influence use. Private enterprise now provides the majority of camping in the 14 Northeastern States. There are more than a thousand commercial campgrounds from Ohio to Maine. The ratio of private campgrounds to public campgrounds for the region is 3 to 1. In 6 years the number of privately owned campgrounds in New Hampshire increased from 11 to 108. Recreation visit lengths, frequencies of visits, and return visit intentions all varied significantly. They were influenced by major attributes of the campgrounds, the campground managers, and the campers themselves. Shorter and less frequent visits occurred in campgrounds that were small, were new, had low investments, had no water for swimming, and, surprisingly, in campgrounds owned by campers who were themselves outdoor recreation enthusiasts.

Forested mountain landscapes--blending management with scenic design. Traditionally, landscape design concepts have been applied to small scale situations, as in campgrounds and around buildings. However, forest development and tourism are taking place on a massive scale, and design concepts must help preserve the general integrity of forests and ranges as pleasant, meaningful environments. A case study in the Sierra Nevada mountains showed that a highway traveler sees more than 57,000 acres along 16 miles of road--an average of 3,600 acres per mile. About 5% of the area was classified as critical from a scenic standpoint. Another 50% was considered highly sensitive from a visual standpoint. Studies are now underway to sharply define scenic criteria and to relate them to resource management measures.

Toward fitting camper preferences and campground costs to planning and management. An economic study of 21 National Forest campgrounds in Colorado showed that:

- (1) Large campgrounds tend to be less expensive to maintain and operate than small ones.
- (2) The trend to "sleep off the ground" was reflected in the fact that 58% of the campers used trailers or pickup campers. Those using tents and pickup campers used near-highway and back-country sites about equally, but families with trailers used near-highway campgrounds about twice as much as those back off the highways.
- (3) Neither size of campground based on number of family units nor cost of building each family unit seemed to influence the amount of its use. These results will help planners design lower cost units that are more desirable.



More wilderness interest in Minnesota's Boundary Waters Canoe Area. All types of visitors go to the canoe country--paddle canoeists, motor canoeists, boat campers, auto campers, resort guests, and day-users. Total visits increased 19% between 1961 and 1966. Greatest increase, 52%, was in visits to the wilderness core area by paddle canoeists who used isolated primitive campsites. In 1961, visitors traveling by canoe barely outnumbered those using boats, and "Canada or Bust" was a main attraction. In 1966, over two-thirds of the visitors canoed; paddlers alone made up half of all use; boaters accounted for only 22% of the use. The proportion of visitors using the area as a corridor to Canada dropped substantially (47% in 1961 to 12% in 1966). Canadian park statistics support this observation.

Water-meters can be an effective tool in estimating recreation use. Recreation management needs accurate measures of recreation use. An Arizona and Michigan study shows that water consumption on developed recreation sites is highly correlated with recreation use. Water meters, though more costly than pneumatic-tube traffic counters, have advantages as indicators of recreation use:

- (1) They are less subject to vandalism.
- (2) They require little maintenance.
- (3) They are not affected by snow and ice.
- (4) They provide supplemental information relating use to water and sewage treatment plant requirements.





FOREST FIRE RESEARCH

1967 .....	\$2,912,000
1968 .....	3,077,000
1969 .....	3,323,000
Increase .....	+246,000

An increase of \$246,000 is needed as follows:

- (1) \$218,000 to strengthen two outstanding fire research projects at Missoula, Montana.
- (2) \$28,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Development of an airborne electronic system to provide rapid detection and accurate location of forest fires requires an increase of \$109,000. This system when finally developed will have capability for both detection and mapping of forest fires, by night or day and through dense smoke. An additional \$109,000 is needed to strengthen research in the prevention of lightning fires through special weather modification techniques. Field experiments should be extended to develop techniques for identifying fire-starting lightning storms and for preventing lightning strokes through cloud seeding. This research will concentrate on preventing the type of lightning fires which produced such disastrous fires during the 1967 season.

The threat of runaway forest fires is probably the biggest single barrier to progressive and orderly community development in many heavily forested rural areas. In the West, recurrent fire disasters such as those of 1967 disrupt long-range management plans and affect the lives of thousands. In the East, the small landowner's cumulative investment of many years can be wiped out in a single plantation fire. In Appalachia, fire has resulted in hundreds of thousands of acres of worthless scrub forest. Even in the South, where forest fire control has made the most impressive gains, the possibility of unacceptable fire losses still deters private investment. Despite continued improvements in the science of forest fire control, the direct and indirect damages from fire are still a severe drain on the already marginal economic health of rural communities in all parts of the United States.

The current fire research program is aimed at a few of the most urgent requirements for reducing forest fire losses. It concentrates on:

- (1) Developing more effective methods for preventing man-caused fires in selected areas.



- (2) Preventing lightning fires with new weather modification technology.
- (3) Reducing fire hazards through prescribed burning and mechanical treatment of dangerous fuel concentrations.
- (4) Predicting fire behavior to facilitate safer and more efficient fire control.
- (5) Improving fire fighting through new methods of aerial and ground attack.

Each of these approaches shows real promise for reducing forest fire costs and losses. Past investments in fire research have already paid off at better than 13 to 1 in reduced cost and losses. While the forest fire problems now facing the Nation are more complex, the pay-off potential from research is greater than ever before.

#### Examples of Recent Accomplishments

Fuel-breaks prevent disaster fires. An analysis of the first 11 wildfires occurring within completed fuel-break networks shows that fuel-breaks pay off handsomely. The savings in firefighting costs alone are calculated at \$538,000, or nearly \$50,000 per fire. The savings in timber and watersheds that did not burn because of fuel-breaks cannot be accurately computed, but they are estimated to be several times as large as the cost savings. A fuel-break is a 50' to 400' wide strip of land that is cleared and planted to "safe" fire type plants. Large areas of particularly hazardous fuels are broken into small, manageable blocks. The fuel-break concept developed by fire research is a compromise between the hazardous and often ineffective fire-break system and the inordinately expensive alternative of complete hazard reduction. Since fuel-breaks are longlasting, additional savings will accumulate over the years.

Forest fires found by remote sensing. Last year it was predicted that airborne infrared fire detection would prove a feasible technique for spotting incipient forest fires while they are still small enough to be easily controlled. The predictions were fulfilled during the 1967 fire season. The Forest Service "spy in the sky" aircraft discovered more than 20 wildfires during its initial field trials this summer in Idaho and Montana. The key to successful fire detection was the electronic "target discrimination module" linking the infrared scanner and the doppler radar navigation system. When a fire is picked up by the infrared system, the target discriminator automatically records its location and also triggers an alarm system to alert the technician in the airplane. Since neither the detection nor navigation systems depends on visual sightings, fires can now be detected when ground and aerial observers are shut down by smoke or darkness.



New fire weather forecast aid. Sea breeze fronts normally reduce fire intensity by lowering temperature and increasing humidity. However, occasionally they bring unexpected wind changes without the favorable temperature-humidity and cause disastrous shifts in fire behavior. These sudden shifts have trapped and killed firefighters and caused runaway fires. Study of sea breeze fronts in California has now discovered the cause of this phenomenon--intensive heating of a thin layer of maritime air on clear days. This new knowledge now permits fire weather forecasters to predict these aberrant fronts in time to prevent fire disasters.

New technique developed for safer, more thorough logging slash disposal. Disposing of tons of debris left behind in logging old growth forests has always been a problem. A light fire, burning when weather conditions make control easy, doesn't remove enough trash to permit regenerating a new crop. But a fire intense enough to do the job may escape and destroy valuable adjacent timber. Chemical treatment may be the answer. Recent large-scale studies in Oregon and northwest California have shown that water solutions of diammonium phosphate applied to slash have reduced the rate of combustion by about 90%. Despite this reduction in burning rate, more treated material was eventually consumed than in similar but untreated, adjacent fuels. In the future, we may be able to use this chemical to control the combustion of large concentrations of fuels on prescribed fires and wildfires.



FOREST INSECT RESEARCH

1967 .....	\$3,998,000
1968 .....	4,201,000
1969 .....	4,323,000
Increase .....	+122,000

An increase of \$122,000 is needed as follows:

- (1) \$34,000 to provide for increasing research at the new Forest Insect and Disease Laboratory at Hamden, Connecticut. Current research on parasites and diseases of destructive forest insects, their physiology and behavior, and their use in controlling destructive forest insects in the Northeast will be strengthened. It will result in safer substitute control for currently-used chemical methods.
- (2) \$50,000 at Berkeley, California, to develop new techniques for remote sensing of forest insect outbreaks.
- (3) \$38,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The objective of forest insect research is to develop improved methods for preventing and controlling damage by insects affecting forests and forest products. This involves:

- (1) Identifying the pests that cause damage.
- (2) Learning how they operate.
- (3) Devising means for minimizing damage.

Greatest attention is given to minimizing damage by preventing losses. Specific approaches include:

- (1) Use of insect parasites, predators, and diseases.
- (2) Silvicultural treatments aimed at keeping forest stands unattractive to pests.
- (3) New techniques such as use of attractants and male sterilization.

Integrated control, the scientific blending of a variety of methods to achieve control with a minimum of adverse side effects, is the ultimate goal.





Insects in United States forests during a normal year kill outright enough sawtimber to build some 600,000 average-sized homes. They attack living trees from the seedling stage through maturity. Even the cones and seeds of forest trees have specific insect enemies. Termites are responsible for annual losses estimated at \$400 million, and wood-boring beetles add substantially to that figure.

#### Examples of Recent Accomplishments

Termite insecticides not hazardous to water supplies. Some concern has been felt about the possibility of soil insecticides commonly used for termite prevention getting into and contaminating wells and streams. Research in Mississippi showed that insecticides applied to the soil did not move appreciably in 10 years. The chemicals remain toxic to termites, but are no hazard to nearby water supplies.

Texas leaf-cutting ant controlled in pine plantations. The Texas leaf-cutting ant is often a serious pest in certain Texas and Louisiana forests, limiting establishment of pine plantations. Ant colonies can be fumigated, but this is prohibitively expensive and not always completely certain. A new bait containing the insecticide Mirex, a slow-acting stomach poison, has totally destroyed colonies within 30 days. It is highly effective, safe, and cheap.

Microbial spray formulation improved. An improved formulation has been developed to deliver a polyhedrosis virus to the Douglas-fir tussock moth. The new formulation keeps virus particles in suspension and partially protects them from inactivation by the sun's ultra-violet rays. It is harmless to both the particles and the plants to which the material will be applied. This is a further step in the development of the virus as an effective biological control agent, a potentially safer and cheaper alternative to chemical insecticides.

Bidrin effective against cone insects. Insects have been beating southern foresters to the harvest of cones grown in extensive "seed orchards." Unless controlled, insects commonly destroy half or more of the seed crop. A new approach, injecting the systemic insecticide Bidrin into the trunks of seed trees, appears to be effective in preventing attack. Advantages over conventional spraying include ability to treat taller trees, less critical timing requirements, and no contamination of the forests.

Aerial photography reduces cost of forest insect surveys. Aerial photography is potentially useful in evaluating outbreaks of forest pests. Extensive studies in the Pacific Northwest have developed aerial photo techniques that are 25% to 50% cheaper than ground detection procedures.



Attractant of major western bark beetle synthesized. Last year a major forward step was the synthesis of an attractant for an Ips bark beetle. Building on this earlier achievement, two western scientists working on Forest Service grants have now synthesized the major component of the attractant of the western pine beetle, one of our most destructive forest pests. Laboratory tests show the synthetic attractant to be highly effective as a lure. Much developmental work will have to be done before the technique is ready for field use, but this discovery brings us closer to the time when the beetles attractants can be used to destroy them.



FOREST DISEASE RESEARCH

1967 .....	\$2,171,000
1968 .....	2,341,000
1969 .....	2,472,000
Increase .....	+131,000

An increase of \$131,000 is needed as follows:

- (1) \$48,000 at Hamden, Connecticut, to strengthen research on the causes and preventive measures for dieback and decline diseases of hardwood forest trees in northeastern United States. The research would concentrate on the relationship of environmental stresses such as moisture deficiencies, temperature extremes, and insect defoliation to diseases of sugar maple, red oak, and ash trees. The primary goal is to reduce the impact of diseases on the natural beauty, utility, and market value of these hardwoods. The newly completed laboratory at Hamden is available for this research program.
- (2) \$60,000 at Delaware, Ohio, to strengthen research on tree diseases and viruses causing losses to valuable hardwoods useful for lumber and improving the environment.
- (3) \$23,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Tree diseases continue to cause a greater impact on our forest than any other single agent. The bulk of this impact is through reduced growth rather than mortality. Public attention is drawn to spectacular forest fires and insect pests, but together they fail to match the long-term destructiveness of insidious diseases. Root diseases, by interfering with tree nutrition, produce stunting, deterioration and death. Bark and stem diseases stain and disfigure wood, and they produce open wounds that lead to decay and lost incomes. Wood-rotting diseases reduce or destroy the quality of wood, and they seriously weaken trees creating hazards from falling limbs or tree trunks to forest visitors. Leaf and needle diseases not only sharply reduce growth, but they may completely ruin the recreational value of a wooded landscape. Some of the impact of diseases on the forest is measurable as loss of board feet of lumber or dollars of rural income. Much less measurable is the impact of diseases on man's environment and his mental and physical health through aesthetics and recreation.

The objective in forest disease research is to develop biologically sound methods for preventing and controlling damage by major diseases of forest tree species. These methods may be direct -- like fumigants to prevent root-rots or fungicides to control foliage diseases -- or they may be indirect like cutting trees to reduce decay losses or fertilizing to change the kinds and numbers of microorganisms in the soil. All of these approaches are





being used to some degree in limited situations. Improvements in these techniques and better knowledge of where and when to use them will result in improved wood production and environmental quality.

#### Examples of Recent Accomplishments

Tissue culture of pine, a new tool for rust studies. Intermountain researchers have learned how to grow pine tissue with and without rust infections in the laboratory. This makes it possible for the first time to study the relationships among host pines and their rust parasites. The technique should speed work to select and breed strains of pine for rust resistance and to determine the effectiveness of systemic compounds in controlling rusts.

New method increases efficiency for breeding rust-resistant white pines. Progeny tests for evaluating Idaho white pines as transmitters of resistance to blister rust are expensive and time-consuming because present techniques require 4 sets of crosses. Research at Moscow, Idaho, has shown that a single cross with a mix of 10 or more pollens will do the trick. This means that the number of parent trees tested can be increased nearly four-fold with existing manpower and facilities.

Insuring rust infections for research. Researchers have long had to limit many investigations on blister rust to the annual, haphazard occurrence and short duration of natural infections. Forest Service sponsored research at the University of Wisconsin has determined the conditions necessary for infection of eastern white pine by the blister rust fungus. The critical factor for controlled needle infection is daily temperature fluctuation. If the highs and lows range between 75° and 40°F., then penetration and infection by the fungus occurs. With this knowledge, critical study of resistance and resistance mechanisms can now begin.

Nematodes weaken trees on marginal sites. High mortality of ponderosa and pinyon pines and juniper that has been attributed to drought, poor soil, or extreme temperatures may, in fact, be related to nematode damage. Our research shows that nematode damage to specialized feeding roots may be the critical factor in survival of western trees following long periods of drought. Early evidence suggests that control of nematodes on heavily used recreational areas on the poorer sites may reduce "drought" losses.

Decay-caused hazards recognized in recreational areas. Recent studies in California recreational areas revealed that half of all lodgepole pines with decay at the base of the trunk were potentially hazardous to area users. More than two serious injuries or deaths per year have been attributed to diseased-tree failures on the selected areas over the past eight years.





This research emphasizes the need for study of the relative decay-susceptibility of other western tree species and of the types and causes of failures in other forest areas. Only when additional information is available can recommendations be developed for inspection and maintenance of trees in recreation areas in order to insure the safety of area users.

Few fungi cause most decays in Appalachian hardwoods. Rural Americans in Appalachia continue to lose potential income through the action of decay fungi that follow fire. Scientists in Kentucky found 22 species of fungi decaying living oaks. Four fungi accounted for almost 60% of the 302 identified infections. Two fungi accounted for over one-third of the total decay volumes. One-fourth of all infections took place through fire scars, and over one-third of the total decay volume was associated with fire scars. Much of the loss in hardwoods due to decay is on small private ownerships. Much of the loss can be prevented through better fire protection.

Bacterially-produced vitamins influence fungal decays. When trees are wounded the tissues present in the stem at the time become susceptible to many organisms. The early colonizers of the wound determine the fate of later arrivals. Some bacteria associated with early discoloring of wound tissue in northern hardwoods have been found to produce thiamine, a vitamin essential for many decay fungi. A possibility for limiting decay may lie in the fact that the bacteria and the thiamine they produce are confined to the wound column. They do not enter wood added to the tree subsequent to wounding.

Ponderosa pine needlecast studies completed. Long-term studies of Elytroderma needlecast of ponderosa pine in the Pacific Northwest have been terminated. The significant findings:

- (1) Growth of the infected trees is reduced proportionately to the crown damage.
- (2) Young uncrowded ponderosa pines with healthy leaders usually recover if not attacked by other parasites.
- (3) Heavily infected trees are often killed directly by defoliation.

Soon-to-be-published recommendations based on these studies are expected to reduce losses to the fungus by describing relatively low-cost, effective silvicultural controls.

Scheduling harvest of dead timber prior to decay. Salvage of beetle-killed Douglas-fir that occurs in scattered and isolated pockets in the Pacific Northwest is often delayed. New descriptive, illustrated guides enable forest managers to estimate the time of death, to predict rate of deterioration, and to estimate losses from breakage during felling. The manager, following recommendations related to his field findings, can schedule operations to salvage the most decay-susceptible timber first.



FOREST PRODUCTS UTILIZATION RESEARCH

1967 .....	\$6,493,000
1968 .....	6,999,000
1969 .....	7,341,000
Increase .....	+342,000

An increase of \$342,000 is needed as follows:

- (1) \$269,000 to expand research at the Forest Products Laboratory, Madison, Wisconsin, to achieve broader use of low-grade hardwoods and wood residues and to provide a greatly strengthened economic base for rural communities, especially in low-income areas where hardwoods are dominant. Since the increasing quantities of such raw materials can be most effectively utilized for fiber and chemical products, the research is directed at improving pulp yield and pulping efficiency, reducing bleaching costs without appreciable loss of pulp strength, and improving pulping processes. Studies will include ways to reduce capital investment for recovery systems, and to reduce air and water pollution.
- (2) \$73,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Forest products utilization research aims at providing sound scientific and technical bases for effective use of timber resources. About 5% of the present gross national product originated in timber-based industries. Timber-based primary manufacturing plants employ one out of every 20 of the United States work force. Shipments are valued at over \$10 billion annually. The economic health of these industries depends on constantly improving the efficiency of their use of available wood supplies.

Utilization research has four broad objectives:

- (1) Improve grades and standards for more efficient use of the timber resource.
- (2) Develop new and improved wood products and processing methods.
- (3) Develop new and improved fiber and chemical products and processes for manufacturing them.
- (4) Improve engineered structures to increase efficiency in the use of wood and wood-base materials.



During fiscal year 1969, the research effort will continue to give increased emphasis to expansion and acceleration of wood fiber products and related chemical research. New facilities for this program were completed in fiscal year 1968. New pulping processes will aim at higher yields, broader utilization of low-quality timber, and reduction in water and air pollution. The technological basis for nondestructive evaluation of wood and wood-base materials will be sought through improved conversion systems and sound engineering approaches.

#### Examples of Recent Accomplishments

Sanitary tissue and toweling from Appalachian woods. High quality facial tissue, toilet tissue, and toweling can be made from a mixture of Appalachian hardwoods and softwoods. Pulp for these papers was produced from a mixture of 80% hardwoods and 20% softwoods. These experiments provide basic knowledge for locating prospective mills close to markets and to large quantities of Appalachian hardwoods not now being utilized. Each day a 500-ton sanitary papermill using this process would use about 500 cords of low-value hardwood, provide employment for about 1,000 people, make products valued at \$100,000, and thereby contribute substantially to rural community stability.

Straight studs from southern pine cordwood. Research has developed a process for converting four-foot southern pine cordwood into acceptable eight-foot 2 by 4's. The process finger-joints four-foot sections that have been freed of drying distortion. The studs are lighter, straighter, and more easily nailed than the denser southern pine studs to which the trade is accustomed. A single stud mill could have an annual profit before taxes of \$660,000 from 174,000 cords of boltwood, plus additional income from pulp chips and dry shavings. Returns to local wood suppliers would be \$3 million per year.

Improved pulping process for southern pine. Southern pine can be used to make a wide variety of paper products as a result of new research with the magnesium bisulfite pulping process. The pulp obtained can be bleached in only three stages as compared to the normal five-stage kraft bleaching process, and costs are considerably less. The pulp produced makes satisfactory linerboard, printing and writing papers, toweling, and tissue paper. Improved recovery of the chemicals used in this process reduces water pollution.

Machine can drive wooden highway guardrail posts. In cooperation with a guardrail subcontractor and an equipment manufacturer, Forest Service research developed a mobile post driver. It drives wood posts as readily as posts of competing materials at competitive rates and at less cost. Savings will amount to \$1 to \$3.25 per post set, or \$400 to \$1,200 per mile. Wood is an excellent guardrail post material with strength, cost, and service-life advantages over other materials. These findings will result in added outlets for wooden posts and safer, cheaper guardrails. The expanded market for wooden posts would increase incomes of woodland owners and rural work forces engaged in harvesting and treating the product.





Ultraviolet absorbent improves durability of clear finishes for wood.

Ultraviolet radiation in sunlight has been shown to cause the early failure of clear finishes and the wood surface beneath. Mechanisms of the ultraviolet destructive action on wood were discovered. Treatment of wood surfaces with an ultraviolet light absorber, dibenzoyl resorcinol, significantly reduced the destructive action. Several experimental finishing systems using an ultraviolet absorbent have improved durability, and these finishes are currently under test at various exposure locations in the United States.

Strength of glued-laminated beams depends on weakest link. Since laminated beams 5' and more in depth and over 100' long are now commonly made, it becomes increasingly important to insure that design procedures used are correct. Research on strength-depth relationship in wood beams developed and verified a new design theory based on a "weakest link" concept. This research benefits industry and the consumer by providing a technically sound basis for design procedures which consider size effects. It will focus attention on the increased potential for large wood beams in construction.

A quick way to attach panels to interior walls. A fast, economical, new method of attaching plywood or other paneling to existing interior walls has been developed. The panel system, called "Fur-Lok," is well adapted to rapid rehabilitation of existing dwellings. The system can play a part in providing inexpensive, serviceable, and functional housing for both urban and rural families.

Wood extinguishes its own fires. Wood has a unique ability to insulate itself against heat as it chars during combustion. In heavy timbers such insulation can reduce internal temperature below the ignition point, and the wood will not continue to burn without some other supporting combustion. Research has determined the rate of char formation in relation to various wood properties. Such rates can be used to predict the fire endurance of heavy timber construction.





FOREST ENGINEERING RESEARCH

1967 .....	\$583,000
1968 .....	745,000
1969 .....	925,000
Increase .....	+180,000

An increase of \$180,000 is needed as follows:

- (1) \$124,000 for research at Houghton, Michigan, to develop improved equipment and engineering systems for harvesting timber and other forest products in the East.
- (2) \$50,000 for research at Auburn, Alabama, to increase productivity of rural woods workers and incomes of small woodlot owners.
- (3) \$6,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The strengthened program at Auburn, Alabama, would develop more efficient engineering systems for pulpwood harvesting and for replanting in the southern pine forest. Research at Houghton, Michigan, would develop more efficient systems for harvesting the small, low-quality timber characteristic of much of the northern Lake States area. In addition to providing for more effective use of the timber resource, consistent with other values of the forest, this research will lead to improvement of working conditions for people engaged in timber harvesting by increasing safety, reducing drudgery, and increasing wages through greater productivity.

Forestry operations have not kept pace with other basic industries in improving labor output, in mechanizing and automating for improved efficiency, and in reducing the physical drudgery involved. The production process is faced with increasing restrictions due to competing forest interests such as recreation, water, wildlife, and livestock which tend to increase already high costs. Because forest industries are decentralized, only small studies have been made leading to piecemeal improvements. Relatively little systematic research has been conducted of the kind required to reach essential major goals:

- (1) Giant steps in cost reduction and improvement of forestry operations.
- (2) Working conditions.
- (3) Safety.

Radical breakthroughs in mechanization and improvement of harvesting and transport systems are urgently needed to raise productivity and income of woods workers, to maintain and increase raw material supplies at competitive prices, to permit harvesting in sensitive areas where water, recreation, aesthetic, and soil values are critical, and to reduce the physical drudgery and danger of woods operations.



The engineering research program is designed to make rapid advances toward solution of harvesting and production problems. Foreseeable benefits include:

- (1) At least a 20% reduction in costs of harvesting the Nation's timber crop at an annual saving of \$320 million.
- (2) Capture of 500 million board feet of annual allowable cut now lost on timberlands not loggable in the Douglas-fir region of the West.
- (3) Capture of an additional 440 million board feet of annual allowable cut in Alaska on National Forest areas that cannot be logged by conventional methods.
- (4) A \$16.5 million saving annually from reduction in mileage of timber-haul roads by use of aerial logging systems in National Forests of the Douglas-fir subregion of the West.
- (5) Harvesting and transportation systems more compatible and/or beneficial to other values such as recreation, aesthetic, water and soil. Savings of \$2 billion in the next 50 years may be possible in reduction of erosion damage in the West alone.
- (6) A 10% reduction in costs of regenerating intensively managed forests in the South.
- (7) A 50% reduction in the costs of harvesting gum naval stores.
- (8) A significant reduction in the logging accident frequency rate--one of the highest in industry.

#### Examples of Recent Accomplishments

Design of efficient logging systems. Many logging enterprises fail or earn inadequate returns because of improper selection and use of available equipment. Simplified procedures have been developed for designing logging systems for Lake States hardwoods and for selecting optimum combinations of men and machines for crawler tractor skidding in the Rocky Mountain area. Ten to twenty percent improvement in operational efficiencies are forecast as loggers put the new guides into use.

Logging with shears. Huge power-operated, scissor-like devices can be mounted on a tractor to fell, limb, top, and buck trees in the woods. Their use eliminates dangerous manpowered sawing operations and increases productivity. Design criteria on the force, energy, and mechanics of cross-cut shearing have been developed for five Lake States tree species to assist equipment manufacturers in designing shears for logging.



Transporting wood chips through pipelines. Design criteria for construction and operation of wood chip pipelines have progressed sufficiently to permit planning for a full-scale pilot line for test and demonstration purposes in the northern Rocky Mountain region. Tests of the pilot line will open the way for more efficient movement of wood supplies with a minimum of road costs and disturbance of watershed, scenic, and other multiple use values.

Aerial systems for logging areas having difficult or restricted access. Criteria were developed in the Pacific Northwest for design and operation of both balloon and skyline logging systems. These accomplishments are bringing to reality the concept of long distance aerial yarding. Aerial logging will radically reduce road requirements and ground disturbance. It will make available timber supplies that are presently inaccessible, and it will permit harvesting in sensitive recreation, aesthetic, and watershed zones.





FOREST SURVEY

1967 .....	\$2,100,000
1968 .....	2,257,000
1969 .....	2,511,000
Increase .....	+254,000

An increase of \$254,000 is needed as follows:

- (1) \$201,000 to obtain more localized and more frequent inventories of available timber supplies to guide forestry programs and sound forest industry development including: \$44,000 for surveys on the Pacific Coast, \$33,000 in the Rocky Mountains, \$22,000 in the North Central, \$22,000 in the Northeast, \$37,000 in the Southeast, and \$43,000 in the South.
- (2) \$31,000 for remote sensing research in the Pacific Southwest to develop new and more efficient techniques for inventories of timber and other forest resources.
- (3) \$22,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The forest survey provides a continuing inventory of the timber situation and outlook in each State and in the Nation as a whole. Basic information is obtained on:

- (1) The area, condition, and ownership of forest lands.
- (2) The volume, quality, and location of standing timber.
- (3) Rates of timber growth and mortality.
- (4) The harvest of timber for industrial and other uses.
- (5) Prospective amounts and kinds of future timber supplies.

Knowledge of the current and prospective availability of timber resources is of basic importance for both national and local programs of forest industry and community development. The survey provides a continuing evaluation of the adequacy of forestry programs now in effect, and it points out needed changes in forestry policies or forestry activities to provide adequate timber supplies in the future. Federal and State forestry agencies rely on the survey to guide program planning and budgeting of appropriations for both public and private forestry activities. Forest industries and other business groups require survey information for many business decisions relating to location of new wood-using plants, wood procurement policies, and land management programs.



Examples of Recent Accomplishments

Continuing progress on State surveys. Inventories of timber resources were completed during the past year on approximately 48 million acres of commercial forest land in 11 States--including Alaska, California, Indiana, Michigan, Mississippi, Montana, New York, Ohio, South Carolina, Virginia, and Washington. Reports on the timber situation and outlook were prepared for 8 States or portions of States.

New survey of North Carolina shows resource gains. The third survey of North Carolina's timber resources showed that commercial forest land areas increased by nearly 700,000 acres between 1955 and 1964. In this period there has been a marked shift in ownership of forest lands from farmer to other categories of private ownership. Volumes of standing timber have increased about 7% since 1955, with marked increases for both sawtimber sizes and smaller material. These increases in timber volumes reflect improved forest management and protection, more complete utilization of the timber harvested, and some reduction in the volume of softwoods cut. Timber growth now exceeds cut by over 20%, but the margin of growth over the expanding harvest of timber is narrowing. A major forestry problem relates to the large proportion of low-quality timber that occupies much of the growing space in North Carolina.

Timber resources increasing in Minnesota. A third survey of Minnesota's timber resources showed that timber volumes have increased about 37% since 1953 as the State's young-growth forests continue to mature. The acreage of commercial forest land is slightly below that of the decade earlier, but the growing inventory of commercial-size trees can now support substantially larger industrial development than seemed desirable only a few years ago.

New system for processing forest inventory data. Survey techniques research has provided a comprehensive system for using computers to process large amounts of inventory data obtained from the forest survey and from other resource inventories. The system is designed to process records of variable formats and to provide a flexible set of tables of resource statistics with appropriate sampling errors. The new data processing system will provide prompter compilations of resource data at reduced costs.



FOREST PRODUCTS MARKETING RESEARCH

1967 .....	\$1,625,000
1968 .....	1,511,000
1969 .....	1,649,000
Increase .....	+138,000

An increase of \$138,000 is needed as follows:

- (1) \$98,000 at Fort Collins, Colorado, and Duluth, Minnesota, to determine feasibility of industrial expansion in the Southwest and Lake States to benefit small communities and owners of small woodlands.
- (2) \$25,000 at Princeton, West Virginia, to develop new markets for wood in urban housing renewal.
- (3) \$15,000 increase to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Marketing research determines ways of improving use of timber resources through more effective production, distribution, and consumer use of wood products. Of particular importance are studies of factors that influence use of wood products and competing materials -- in construction, in manufacturing industries, in shipping, and in other end uses. Other studies are designed to identify ways of reducing costs in the harvesting, processing, distribution, and end uses of timber products. Results of marketing studies provide industry with guidelines for improving production and marketing practices and for locating and developing new wood-using industries. Marketing studies, together with resource information from the forest survey, provide the basis for public and private appraisals of timber supply-demand relationships. Such appraisals are basic to the evaluation of and budgeting for forestry programs. Improved marketing of wood products benefits millions of land-owners, operators and employees of wood-using plants, and economies of many rural areas.

Examples of Recent Accomplishments

The manufactured home -- an important market for wood products. A study of factory-produced homes in the Central States found that most manufacturers still use wood as a basic framing material. The average volume of wood products included in wood-frame house "packages" was 5,122 board feet of lumber, 3,334 square feet of plywood, and 1,104 square feet of building board. Most of the lumber used was softwood. Sizable volumes of lumber, plywood, and building board also were used in garage "packages." The changing mix of products and housing types has a significant impact on both current and prospective wood markets.





Markets for wood pallets in the steel industry. A survey of pallet use in the steel industry showed an annual use of about 80 million board feet of lumber in the manufacture of wooden pallets and skids for steel manufacture. This market for wood products is a specialized one; most pallets are essentially custom-produced for purchasing mills. Markets for wooden pallets in the steel industry probably can be increased by nearly 25% by 1970 as a result of industrial expansion and further applications of pallets and skids.

Comparing prices for veneer bolts, saw logs, and pulpwood. Guidelines and illustrations for preparing price comparison curves for various products have been developed. Procedures include the taking of measurements of samples of loads of timber products. Adjustments are given for the scaling practices common to a region. Comparative price charts are useful to buyers as well as to sellers of timber, and they can be applied to any forest product. Pricing guides have become increasingly important in the South where an expanding softwood plywood industry has developed along with a sizable lumber industry and a rapidly growing pulp and paper industry.

Determining costs and returns of hardwood lumber production. Profit margins at smaller hardwood sawmills have shrunk steadily in recent years. For most operators, information on cost control programs for various mill operations have been lacking. Results of a detailed study of small sawmills in Ohio and Kentucky show that mills performing seasoning and secondary manufacture and selling a wide array of products had superior operating margins. The study indicated those operating costs and management factors on which cost control efforts should be concentrated in order to increase operating efficiency and the economic health of mills in the Appalachian area. Other related studies indicate that, by sawing planks and timbers from small logs and from cores of large logs, mill operators can reduce costs and production of low-grade lumber in order to increase operating margins.





FOREST ECONOMICS

1967 .....	\$791,000
1968 .....	983,000
1969 .....	1,214,000
Increase .....	+231,000

An increase of \$231,000 is needed as follows:

- (1) \$128,000 for research in the new laboratory at Carbondale, Illinois, to improve income opportunities from forestry in the Ozarks and surrounding timber-producing areas where new sources of income and employment are urgently needed to support a viable rural economy.
- (2) \$50,000 equally divided for research in the South and Pacific Northwest to evaluate costs and benefits of alternative forestry programs and to identify most efficient ways of meeting the Nation's expanding needs for forest products.
- (3) \$42,000 for research at Ogden, Utah, to evaluate costs and benefits of alternative forestry programs in the Intermountain Region.
- (4) \$11,000 to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

Forest economics research provides a variety of cost-benefit information to guide investment of both public and private funds in forestry activities. Timber growing opportunities in planting, stand improvement, and protection, vary widely throughout the Nation. They depend upon such factors as site, forest type, ownership, market conditions, and land use alternatives. Among the millions of forest owners there are wide differences in willingness and ability to invest in timber growing activities. Likewise, wide differences exist in response to forestry assistance programs. With expenditures for forestry purposes already amounting to hundreds of millions of dollars annually, the need for efficient budgeting of funds increases. Pressures on forest resources for different uses also intensify the need for economic evaluations and guidance in allocation of land and investments among alternative forestry activities.

Examples of Recent Accomplishments

Economic guides for control of blister rust in the East. Economic guidelines and standards have been developed for blister rust control programs in the Northeast. Methods are provided for estimating timber values saved by different control alternatives. These are based upon discounted values of timber saved and local control costs. The new procedures will be useful to field personnel in planning and carrying out control activities.



Computer programs for evaluating forestry investment. A new computer program has been developed that permits quick and efficient evaluation of a large number of alternative, long-term forestry investments. The computer calculates discounted costs, incomes and net worths for a range of interest rates and internal rates of return. Related research also has developed a computer program that will compute allowable cut. Computations which formerly required at least 20 hours by hand now take less than a minute on the new computing system. As a result many alternatives for investment in forestry can be developed for consideration of managers.

Promising returns from private woodlands in Indiana. A study of the economics of managing 50 small forest holdings showed average returns were about \$7 per acre per year. Investments in land and timber ranged from a low of \$34 per acre to \$660 per acre. Rates of return from timber management were as much as 6% on some properties. Returns averaged an acceptable 4.5% in all the woodlands in the sample.

Landowners in West Virginia not interested in commercial timber. A study showed that three-fourths of the owners of woodlands in West Virginia have little interest in commercial timber production. Since two-thirds of the commercial forest land in the State is held by private nonindustrial owners, much of the potential growth capacity in the State consequently is not being realized. West Virginia has more standing hardwood sawtimber than any other State, but its contributions to the economy of the area are limited by problems of ownership, low quality of much timber, and inadequate use of the potential productivity.



RESEARCH CONSTRUCTION

1967 .....	\$3,285,000
1968 .....	3,428,000
1969 .....	- -
Decrease .....	-3,428,000

The 1968 appropriation provided for the following non-recurring items:

## Construction:

Fort Myers, Florida .....	\$220,000
State College, Mississippi .....	290,000
Albuquerque, New Mexico .....	700,000
Delaware, Ohio .....	950,000
LaGrande, Oregon .....	350,000
Madison, Wisconsin .....	1,300,000

## Design and specifications:

Moscow, Idaho .....	45,000
Gulfport, Mississippi .....	50,000
Franklin, North Carolina .....	57,000
Research Triangle, North Carolina .....	95,000
Rhineland, Wisconsin .....	<u>31,000</u>

Subtotal .....	4,088,000
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Reduction made pursuant to PL 90-218, Albuquerque, New Mexico .....	<u>-660,000</u>
Total .....	3,428,000

Examples of Recent Accomplishments

Laboratories completed during fiscal year 1968 provide modern facilities for 98 scientists at 7 locations:

<u>Appropriation</u> <u>Year</u>	<u>Location</u>	<u>Facility</u>	<u>Capacity</u> <u>Scientists</u>
1965	Madison, Wisconsin	Wood Pulp and Fiber Laboratory	24
1966	Hamden, Connecticut	Forest Insect and Disease Laboratory	23
1966	Ames, Iowa	Hardwood Planting Laboratory	3
1966	Houghton, Michigan	Forest Engineering Laboratory	7





<u>Appropriation</u>			<u>Capacity</u>
<u>Year</u>	<u>Location</u>	<u>Facility</u>	<u>Scientists</u>
1966	Missoula, Montana	Forestry Sciences Laboratory	11
1966	Morgantown, West Virginia	Forestry Sciences Laboratory	12
1967	Olympia, Washington	Forestry Sciences Laboratory	18
Total .....			98

Contracts were awarded in fiscal year 1967 for construction of laboratories at Athens, Georgia, Carbondale, Illinois, and Oxford, Mississippi. These three facilities, when completed early in fiscal year 1969, will have a capacity for 61 more Forest Service scientists plus supporting workers.

Of the five laboratory construction projects provided for in 1968, one (LaGrande, Oregon) has already been started. It should be completed by mid-summer. It is hoped to start construction of the other laboratories in a short time.

Planning is complete or will be finished by June 1968, for laboratories at 9 locations:

<u>Location</u>	<u>Facility</u>	<u>Estimated Cost</u>
Berea, Kentucky	Forestry Sciences Laboratory	\$860,000
Burlington, Vermont	Sugar Maple Laboratory	650,000
Lincoln, Nebraska	Shelterbelt Laboratory	500,000
Durham, New Hampshire	Forestry Sciences Laboratory	955,000
Nacogdoches, Texas	Wildlife Habitat and Silviculture Laboratory	335,000
Corvallis, Oregon	Forestry Sciences Laboratory	2,500,000
Provo, Utah	Shrub Improvement Laboratory	560,000
Madison, Wisconsin	Remodeling Forest Products Laboratory	3,600,000
Radnor, Pennsylvania	Forest Service Building	3,720,000

Planning financed in fiscal year 1968 is progressing on schedule for the Forestry Sciences Laboratory at Moscow, Idaho. Design criteria have been completed, and we plan to award contracts soon for planning of the other four laboratories.







COOPERATION IN FOREST FIRE CONTROL

1967 .....	\$12,834,000
1968 .....	14,357,000
1969 .....	14,367,000
Increase .....	+10,000

An increase of \$10,000 is proposed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

A successful fire protection program requires effective fire prevention to keep as many fires from starting as possible. State and private funds budgeted for fire prevention and suppression have increased from \$47 million in fiscal year 1958 to about \$75 million in fiscal year 1968. Federal funds in 1968 for this program are \$14.3 million, making a total planned expenditure of nearly \$90 million for fire prevention and suppression on State and private land during fiscal year 1968. The most recent estimated cost of protection on the 516 million acres needing protection is \$123 million.

During the 10-year period 1957-1966 States reported an average of 112,047 fires which burned 4,601,600 acres per year. This compares with an average of 175,058 fires and 13,493,144 acres burned during the 10-year period 1947-1956. State and private land placed under protection increased from 328 million acres in 1947 to over 472 million acres in 1966. It is planned to place the remaining 44 million acres of qualifying land under protection as soon as possible as well as to intensify protection on those acres where protection is not now adequate.

Although the "Smokey Bear" and "Keep Green" programs have been very successful, man still causes over 95% of forest and grass fires on non-Federal lands in the United States. Considerably more effort will be given in the field of education and law enforcement. Many States have good laws and take effective enforcement action while others have inadequate laws and the enforcement action is minimal. States will be encouraged to enact strong fire prevention legislation. Also, additional technical specialists will be employed by the States at the local level to better cope with the man-caused fire problem.

Lands in State and private ownership contain 72% of the commercial forest land in the United States. Adequate and continued protection from fire is necessary if the full potential of these lands is to be realized. Many States have recognized this and have strong fire control leadership available with adequate forces of well trained and properly equipped fire control people. Other States are not so advanced.



To a large extent rural regions with substantial social and economic problems are forested regions. Human rehabilitation and welfare in many rural areas depend in part on maintaining and protecting the forest areas. The economy of the people in these areas is closely tied to the timber, recreation, water, and wildlife resources. In addition, the movement of people from urban to suburban, wooded areas and building of homes in such areas has added to the operational costs of fire protection. Special emphasis will be made to reduce the risk this encroachment has caused.

With high values of commercial timber land at stake, it is essential that fire protection agencies be prepared to meet the threat that occurs during drought periods or resulting from a high incidence of fires over a short period of time. The damaging fires which occurred in the West this past summer, many of which occurred on inadequately protected State and private lands, is a good case in point. Additional training in the use of fire weather information for use in fire control as well as a tool in fire prevention will be made.

#### Examples of Recent Accomplishments

The allotment and expenditure table which follows shows State fiscal year 1967 expenditures and Federal fiscal years 1967 and 1968 allotments to States. The Federal distribution to each State is based on a formula which recognizes the program need and expenditure level in each State. For fiscal year 1968 the appropriation increase of \$1.5 million over the amount appropriated in fiscal year 1967 was distributed to States based upon each State's percentage of commercial forest land in State and private ownership. The remainder of the fiscal year 1968 appropriation was distributed by regular formula.





COOPERATIVE FOREST FIRE CONTROL  
C-M 2

Project (29)

	State and Private Funds Expended FY 1967	Federal Allotments FY 1967	Federal Allotments FY 1968	<u>1/</u>
Alabama .....	\$1,410,599	\$370,454	\$432,906	
Alaska .....	498,937	88,523	91,926	
Arizona .....	19,468	19,500	47,720	
Arkansas .....	1,410,766	377,392	432,118	
California .....	24,884,039	1,035,522	1,041,164	
Colorado .....	277,296	78,565	109,096	
Connecticut .....	321,627	100,080	113,256	
Delaware .....	31,598	15,500	21,440	
Florida .....	4,952,932	541,062	582,574	
Georgia .....	4,289,380	539,377	609,204	
Hawaii .....	55,910	35,000	38,888	
Idaho .....	685,781	207,258	210,550	
Illinois .....	257,342	72,887	95,672	
Indiana .....	157,580	68,408	79,680	
Iowa .....	82,311	47,000	56,216	
Kansas .....	530,000	92,622	129,626	
Kentucky .....	879,434	243,128	290,500	
Louisiana .....	2,360,108	446,286	485,802	
Maine .....	1,346,830	307,584	408,632	
Maryland .....	634,526	143,472	173,468	
Massachusetts .....	412,407	153,455	202,964	
Michigan .....	2,685,727	473,444	515,740	
Minnesota .....	803,063	289,703	330,764	
Mississippi .....	1,944,938	450,008	494,442	
Missouri .....	1,308,598	304,805	350,004	
Montana .....	449,058	149,661	160,172	
Nebraska .....	301,944	84,502	98,888	
Nevada .....	326,137	123,488	130,188	
New Hampshire .....	254,253	86,599	109,052	
New Jersey .....	692,080	159,584	176,732	
New Mexico .....	192,685	63,992	71,432	
New York .....	1,750,690	317,437	372,612	
North Carolina .....	2,545,935	436,807	492,448	
North Dakota .....	13,347	15,957	21,152	
Ohio .....	464,091	123,395	137,244	
Oklahoma .....	274,118	157,198	172,952	
Oregon .....	3,766,906	506,920	529,514	
Pennsylvania .....	1,612,222	295,150	348,864	
Rhode Island .....	208,167	47,000	48,584	
South Carolina .....	1,908,874	405,956	430,486	



COOPERATIVE FOREST FIRE CONTROL-continued  
C-M 2

Project (29)

	State and Private Funds Expended FY 1967	Federal Allotments FY 1967	Federal Allotments FY 1968 <u>1/</u>
South Dakota .....	63,238	52,929	53,116
Tennessee .....	2,364,587	360,186	415,380
Texas .....	1,001,483	322,474	363,134
Utah .....	234,777	74,730	79,112
Vermont .....	78,274	47,000	61,688
Virginia .....	1,654,490	356,008	405,496
Washington .....	3,126,075	520,946	543,596
West Virginia .....	447,429	155,703	192,272
Wisconsin .....	2,117,185	398,082	437,528
Wyoming .....	78,282	69,461	70,506
Administration, inspection, prevention and special services to States .....	- -	1,001,800	1,090,500
	\$78,167,524	\$12,834,000	\$14,357,000

1/ While the amount available to a State may, if the allotment is small, exceed previously computed expenditures by that State, the actual payment to a State never exceeds State and private funds expended by or under the control of the State.



COOPERATION IN FOREST TREE PLANTING

1967 .....	\$300,000
1968 .....	302,000
1969 .....	303,000
Increase .....	41,000

An increase of \$1,000 is needed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The Forest Service cooperates with 48 States, Puerto Rico and the Virgin Islands through financial and technical assistance and other services in the production, acquisition, and distribution of tree planting stock for forest and windbarrier plantings on non-Federal land. This program (authorized under Section 4 of Clarke-McNary Act of 1924) helps materially by providing planting stock for the Nation's needs for a wide variety of uses including:

- Timber production
- Wildlife habitat
- Watershed protection
- Recreation
- Rural beautification
- Special forest products

Twenty-four States have forest tree improvement programs that include seed orchards for the production of genetically-superior seeds that will eventually produce planting stock with potentials for more rapid growth, resistance to diseases, higher quality wood structure and other desirable characteristics. Several States are now growing and offering planting stock from genetically-improved seeds. The planting of genetically-improved tree seeds will greatly increase potential timber yields per acre on newly reforested areas. This cooperative program will materially aid in attaining the national timber goals for non-Federal lands by the year 2000 and beyond. Forest resource development is a long-range enterprise that requires a minimum of 20-25 years to produce a short rotation timber crop such as pulpwood.

This program also assists the States in meeting increased costs for new equipment for extracting seeds, nursery operations, needed nursery maintenance and other related costs that continue to arise. Improvement in nursery techniques, along with better field planting practices, are resulting in better survival, more rapid growth, and reduced costs for establishing a stand of forest trees or shelterbelts. High standards in forest tree nursery practices must be applied if the maximum benefits from the limited supply of genetically-improved seeds are attained.





The War on Poverty needs trees for planting in impoverished rural counties to provide employment and develop timber resources in these areas. The 1969 objective is to assist the States in production of 600 million high quality seedlings for distribution to private landowners for reforestation of almost a million acres and shelterbelt planting on about 40,000 acres. This planting stock will, in many ways, aid in current high priority programs for:

- Beautification
- Cropland adjustment
- Agricultural conservation
- Watershed protection
- Appalachian forestry
- Rural areas development
- Forestry-based recreation

These programs complement private forestation programs that depend upon planting stock for reforestation and shelterbelt plantings.

The 1967 Federal-State cooperation in the production and distribution of forest and shelterbelt planting stock, for use on non-Federal land, continued at about the 1966 level. The 48 cooperating States operate 98 nurseries that produced over 500 million trees for forestation and shelterbelt planting this year.

#### Examples of Recent Accomplishments

The Georgia Forestry Commission produced about 7 million slash and loblolly pine seedlings in 1967 from genetically-improved seeds collected from their seed orchards. Georgia is the leading State in the production of genetically-improved planting stock. It should double this volume in 1968. Florida, South Carolina, Louisiana, Texas, and North Carolina have collected genetically-improved seeds from their seed orchards and will offer improved stock for planting in 1968. Many other States will have a limited supply of genetically-improved planting stock in the next few years.

The number of trees shipped to landowners during each of the past five fiscal years in comparison with all forest and shelterbelt trees produced by public and private nurseries is as follows:



<u>Year</u>	<u>Federal-State Cooperative Program</u>	<u>Other State Distribution</u>	<u>Total Output All Nurseries</u>
1963	587,647,000	30,607,000	1,008,000,000
1964	535,429,000	43,174,000	948,312,000
1965	508,651,000	37,805,000	893,564,000
1966	521,000,000	50,530,000	864,705,000
1967	572,089,000	30,307,000	972,343,000

Shipments for fiscal years 1968 and 1969 are expected to be about the same as those shown for 1967.



COOPERATION IN FOREST MANAGEMENT AND PROCESSING

1967 .....	\$3,546,000
1968 .....	3,557,000
1969 .....	3,561,000
Increase .....	+4,000

An increase of \$4,000 is needed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

This program operates in 49 States, Puerto Rico and the Virgin Islands. Substantial benefits to rural landowners accrue through sale of timber stumpage, Christmas trees, herbs, floral greens and other products. Technical assistance is provided these owners to improve the productivity of their respective lands, and to processing plants and loggers in all aspects of woodland harvesting and the manufacture of primary forest products. This program materially benefits low income landowners and other rural people. It also is instrumental in utilizing forest land for recreational purposes and helps enhance the beauty of the countryside. Professional advice and assistance is given to local communities through participation on Technical Action Panels on economic development opportunities.

Forest land management involves long-term financial planning and intimate knowledge of markets. Few non-industrial private owners have the training or experience to make effective decisions in planning the optimum use of their forest properties. Assistance to landowners involves studies and recommendations to improve productivity. Increased production on these lands improves the economic status of individuals, contributes to stability of local communities, and enhances the national economy.

Assistance to processors and loggers involves studies and recommendations to improve productivity. Output effectiveness is increased by improving quality, increasing production, reducing operating costs, and locating markets. State service foresters and forest products utilization specialists provide direct service in assisting processors and loggers. In addition, assistance is provided in the marketing and utilization of special forest products such as Christmas trees, decorative foliage, and herbs. Marketing of special products provides a source of regular annual income to people who produce, harvest, and sell these items.

Non-industrial private owners have 60% of the Nation's forest land. Inherent productivity of these lands is equal to, or better than, the productive capacity of public and industrial forest holdings, yet these lands produce 50% of the country's timber. Recent expansion in timber industries has been concentrated in areas where non-industrial private ownerships predominate, so these ownerships assume increasing importance in forest industry development. While annual accomplishment in this assistance program has doubled during the past decade, the area serviced annually is still a small portion of the total area in target ownerships.



The following table shows major benefits that have been, or will be, obtained from Federal appropriations when matched with State appropriations:

Major Benefit	:	:	Fiscal	:	Fiscal	:	Fiscal	
	:	Unit	:	Year	:	Year	:	Year
	:	:	:	1967	:	1968	:	1969
Woodland owners given woodland management assistance .....	:	:	:	:	:	:	:	:
	:	number:	:	109,000:	:	110,000:	:	110,000
Forest products operators given assistance .....	:	:	:	:	:	:	:	:
	:	number:	:	12,500:	:	12,500:	:	12,500
Area of woodland involved .....	:	acres:	:	6,232,000:	:	6,500,000:	:	6,500,000
Volume of timber products sold or harvested .....	:	:	:	:	:	:	:	:
	:	MBF :	:	820,000:	:	820,000:	:	820,000
Value of timber products sold or harvested .....	:	:	:	:	:	:	:	:
	:	dollar:	:	22,000,000:	:	22,000,000:	:	22,000,000
Owners referred to consulting and industrial foresters for additional assistance .....	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:
	:	number:	:	2,900:	:	3,000:	:	3,000
	:	:	:	:	:	:	:	:

#### Examples of Recent Accomplishments

A man, aged 78, is tree farming on 160 acres in southern Mississippi on land that was homesteaded by his father. By harvesting crude gum for the naval stores industry before cutting the trees for timber, this farmer doubles his income over the estimated yield from timber stumpage. Also, he has his own harvesting equipment so is able to maximize returns from stumpage by selling trees for end products that will provide maximum prices for stumpage. This landowner sets an enviable example for his neighbors. Technical assistance is provided by the Mississippi Commission of Forestry under the Cooperative Forest Management Program.

A farmer in southeastern Ohio within the Appalachian Economic Development Region requested assistance with marketing high quality walnut timber. On the advice of the service forester, the landowner advertised his timber. The highest bid of \$5,100 was \$1,300 higher than the lump sum offered by a prospective buyer before the landowner requested assistance and advertised for bids.





GENERAL FORESTRY ASSISTANCE

1967 .....	\$1,471,000
1968 .....	1,602,000
1969 .....	1,616,000
Increase .....	+14,000

An increase of \$14,000 is needed to provide for the full year costs in fiscal year 1969 of the pay increase pursuant to PL 90-206.

The objective of this program is to help rural communities and their people to more fully utilize forest products and other forest resources which are essential to economic development. Foresters of the Forest Service and cooperating State forestry agencies are members of U.S. Department of Agriculture Technical Action Panels (TAP) at local levels which are concentrating their collective abilities on development opportunities.

Among the outreach services that forestry TAP representatives provide are:

- (1) Assistance to local people and groups in obtaining technical assistance grants, loans and cost-sharing funds for improvement of their forests and development of forest industry locally.
- (2) Assistance in the development and conduct of training programs for woods and mill workers under various local, State and Federal authorities.

Leadership, coordination and technical backstopping is provided the forestry members of these teams through the General Forestry Assistance Programs.

Most of the economic development regions and multi-county development districts funded through the Public Works and Economic Development Act of 1965, PL 89-136, are largely forested. General Forestry Assistance funds are used to provide professional services in planning for full use of the forest resources in these regions and districts. The Appalachian Regional Program is specifically funded through the General Forestry Assistance Program to provide professional management services to woodland owners and technical assistance in harvesting, manufacturing, and marketing to loggers and forest products processors.

General Forestry Assistance funds are being used to improve management, harvesting and processing practices in hardwood timber stands and manufacturing plants. Recent studies and investigations reveal that fine hardwoods are in short supply. Projections of the future supply of some species reveal an ever-growing shortage.



The following table shows comparison of actual and estimated benefits from this program:

	<u>1967</u>	<u>Fiscal Year</u> <u>1968</u>	<u>1969</u>
Program workshop and development .....	332	350	365
Administrative studies .....	160	175	180
Forest management assists .....	513	550	560
Forest products utilization assists .....	740	800	850
Inventories-economic and marketing investigations .....	281	300	325
Rural Areas Development assistance (projects) .....	223	250	500
Outreach assistance (projects) .....	310	330	650
Assists to landowners, loggers and processors in Appalachia .....	4,125	4,150	4,150
Acres involved .....	220,000	220,000	220,000

#### Examples of Recent Accomplishments

Toledo Products, Inc. has created a new payroll and new hope for the elderly and handicapped people of Lincoln County, Oregon. In 1961, Dr. Matthew Gruber decided to help the senior citizens of his community. Seeing waste lumber, slabs and edgings from the local sawmill being burned, he discussed with local foresters and community leaders the possibility of using it to make toys and small commercial items.

With the assistance of local State and Federal Forest Service members of the county TAP, a corporation was formed. The objectives are to:

- (1) Promote employment and welfare of elderly and handicapped people.
- (2) Make use of the industry and skills of these people to fortify the local economy.
- (3) Utilize hitherto wasted wood for new products.

Preferred stock was sold to anyone who did not work in the plant. Common (voting) stock is held by workers only. The average age of all employees is 67. They each own up to \$100 worth of common stock. Employment has increased from the original six to 34.

The county Technical Action Panel assisted in securing the rental of an old boat house as a factory. Additional machinery, such as bench saws, were acquired as funds and opportunity permitted. In 1964 the county TAP helped find larger quarters. Purchase was made through a Small Business Administration loan.



From the start the county RAD group, including their forestry advisors from the Forest Service and the State Department of Forestry, took a vital interest in this enterprise. This resulted in securing local support through investments by townspeople in securing needed equipment and markets for their products.

Cooperative revives forest industry. An industry which has been closed down for some time in Menahga, Minnesota (800 population) came to life this fall with the establishment of a new forestry cooperative. The Minnesota Forest Products Cooperative began to manufacture lath and snow fencing in December 1967. According to present estimates, it will provide a notable boost to the economy and a market for wood to be harvested by local farmer members.

The idea was born last spring when Walter Skoog, manager of the Menahga Farmers Cooperative Store, read an article about the Lake States Forestry Cooperative. He and representatives of other cooperatives in the area called for assistance from the U.S. Department of Agriculture's State Technical Action Panel and the Minnesota Conservation Department. State Forestry and Forest Service specialists conducted intensive resource, market and facility analyses and found the project promising.

A manager and small crew are now at work handling the raw materials and getting the plant into working order. The raw material is being purchased from local people, half being harvested from lands of cooperative members and the other half from State, county and other private lands.









## COOPERATIVE RANGE IMPROVEMENTS

Appropriation, 1968 and base for 1969 .....	\$700,000
Budget estimate, 1969 .....	<u>700,000</u>

Part of the grazing fees from the National Forests, when appropriated, are used for revegetation of depleted rangelands, construction and maintenance of range improvements, rodent control, and eradication of poisonous plants and noxious weeds. These funds are advanced to and merged with the appropriation, Forest protection and utilization, subappropriation, Forest land management.

### FORMULA FOR APPROPRIATION

Section 12 of the Act of April 25, 1950, (Granger-Thye Act) provides that of the money received from grazing fees by the Treasury from each National Forest during each fiscal year there shall be available at the end thereof when appropriated by Congress an amount equivalent to 2 cents per animal month for sheep and goats and 10 cents per animal month for other kinds of livestock under permit on such National Forest during the calendar year in which the fiscal year begins.

Since figures for animal months permitted are not available until after more than one-half of the fiscal year for which funds are appropriated has elapsed, the 1969 appropriation request of \$700,000 necessarily represents the best current approximation of the amount which will become available in the calendar year 1968 under the animal-months-permitted formula.

For calendar year 1966, the latest available figures, animal months permitted were 7,079,802 for cattle and horses, and 6,378,497 for sheep and goats. This calculates to \$835,550 available under the formula.







# FOREST ROADS AND TRAILS

Appropriation Act, 1968, and base for 1969 .....	\$110,000,000
Budget estimate, 1969 .....	91,970,000
Decrease .....	<u>-18,030,000</u>

## PROJECT STATEMENT

The following tabulation reflects the total program for the construction and maintenance of roads and trails on the National Forests by combining the funds available under the appropriation "Forest roads and trails" with the permanent appropriation of 10% of National Forest receipts.

Project	1967	1968 estimate	1969 estimate	Increase or decrease	
				Increased :	
				Costs	Other
				(PL 90-206)	
1. Construction of roads and trails	\$81,449,794	\$103,259,000	\$91,218,000	+\$224,000	-\$12,265,000
2. Maintenance of roads and trails	<u>37,859,355</u>	<u>20,843,000</u>	<u>20,972,000</u>	<u>+129,000</u>	<u>- -</u>
Total obligations .....	119,309,149	124,102,000	112,190,000	+353,000	-12,265,000
Transfer from "Roads and Trails for States" .....	-16,778,480	-17,566,480	-18,800,000	- -	-1,233,520
Program under "Forest Roads and Trails" contract authorization ...	102,530,669	106,535,520	93,390,000	+353,000	-13,498,520
Obligations incurred under unfunded contract authorization .....	-1,300,669	3,464,480	-1,420,000	- -	-4,884,480
Increased pay and postal costs					
PL 90-206 .....	(- -)	(1,392,000)	(1,600,000)	(+353,000)	(-145,000)
Total available or estimate .....	<u>101,230,000</u>	<u>110,000,000</u>	<u>91,970,000</u>	<u>+353,000</u>	<u>-18,383,000</u>

a/ Includes obligations of \$15,173,778 incurred under Pacific Northwest Disaster Relief Act of 1965 (PL 89-41), approved 6/17/65.

A decrease of \$18,030,000 is proposed in construction of roads and trails as a part of the overall effort to postpone items which can be deferred for the present. This appropriation provides for the liquidation of obligations incurred for the construction and maintenance of forest roads and trails pursuant to the authorization contained in the Federal-Aid Highway Act. An appropriation of \$91,970,000 for 1969 is required to:





- (1) Pay for obligations of the prior year which will be due for payment in fiscal year 1969.
- (2) Pay the portion of 1969 obligations of \$93.4 million contract authorization which will require cash payment in that year. This includes \$62.6 million 1968 authority and \$30.8 million 1969 authority made available by the Federal-Aid Highway Act of 1966.

An adequate system of forest development roads and trails is essential to insure the continued contributions and values of the National Forest System. The presence or lack of access by road or trail has a direct or controlling influence on the proper management and beneficial use of National Forest lands and resources. This factor largely determines the value of timber that can be marketed, the size, duration, and distribution of timber sales, and the level of salvage cuttings. It strongly influences the effectiveness of measures for protecting these lands from fire, insects, disease, and other destructive forces. It influences the level of use made of recreation, wildlife, and other resources of the National Forest.

Roads and trails are needed in the National Forests to help provide the lifelines required by trade and commerce. Extending the forest road system is essential to rural communities which depend upon National Forest resources for a livelihood. Improvement of rural life is one of the major objectives of the Department and the Forest Service. The goal is to increase the economic and cultural opportunities of rural people to insure that they can enjoy a pattern of living comparable to that of the rest of our citizens. Good roads expand opportunities for rural development. Rural businesses and industries depend on the access they provide to National Forests to move the forest goods and raw materials they need. Roads open up the bountiful recreation sites and opportunities with which our National Forests are endowed. They serve the urban dweller seeking relaxation and open space. An adequate National Forest transportation system is essential for the economic and social well-being of both urban and rural America.

Following is a summary of the major road and trail construction and maintenance to be undertaken in 1969 as compared with fiscal years 1967 and 1968:

	FY 1967		FY 1968		FY 1969	
	<u>Miles</u>	<u>Amount (in thousands)</u>	<u>Miles</u>	<u>Amount (in thousands)</u>	<u>Miles</u>	<u>Amount (in thousands)</u>
Recurrent road maintenance .....	114,664	\$18,698	116,459	\$17,080	118,329	\$17,698
Recurrent trail maintenance .....	102,744	3,987	102,500	3,763	101,580	3,274
Bridge construction (units) .....	181	3,079	219	7,100	156	4,100
Road construction .	1,482	49,403	1,504	63,159	910	55,618
Trail construction	677	3,902	396	3,000	330	4,000



	FY 1967		FY 1968		FY 1969	
	Miles	Amount (in thousands)	Miles	Amount (in thousands)	Miles	Amount (in thousands)
Surveys, plans, and supervision (includes timber purchaser roads ...	5,089	\$20,420	5,000	\$20,000	5,110	\$22,000
Supplementing timber purchaser roads ...	1,083	4,495	1,500	8,000	1,030	4,700
Road purchase .....		151		2,000		800
Flood repairs .....		15,174		- -		- -

At the \$112.2 million program level, minimum support to the timber sale activity and access to recreation areas being developed will be provided, and some emergency timber and recreation access construction will be undertaken. No roads for future timber sales, future development of recreation resources, or protection of forest resources from fire, insect and disease will be started.

Transportation system planning will continue at the 1968 level so that advance road construction may be readily resumed at a later date to meet future needs. Planning will also continue so that adequate transportation systems can later be developed in the National Recreation Areas, on lands purchased under the Land and Water Conservation Fund Act, and on Forest Service lands where reservoirs are constructed by other agencies.

#### Summary of Work Progress and Accomplishment

	By the Government			By Purchasers of Timber		
	FY 1967	FY 1968	FY 1969	FY 1967	FY 1968	FY 1969
Roads (miles) .....	1,482	1,504	910	4,271	4,748	5,220
Trails (miles) .....	677	396	330	- -	- -	- -
Bridges (number) .....	181	219	156	43	49	54

Emphasis has been given to road construction in underdeveloped areas. Following is progress in accelerated road construction in connection with the Appalachian Regional Development Program:

1967 .....	\$2,250,000
1968 .....	2,000,000
1969 .....	1,200,000



Authorizations for Appropriations a/

<u>Fiscal</u> <u>Year</u>	<u>Construction</u>	<u>Maintenance</u>	<u>Total</u>	<u>Funded</u>	<u>Unfunded</u>
1967	\$69,000,000	\$16,000,000	\$85,000,000	\$85,000,000	- -
1968	149,157,000	20,843,000	170,000,000	73,374,000	\$96,626,000
1969	149,028,000	20,972,000	170,000,000	91,970,000	78,030,000
	367,185,000	57,815,000	425,000,000	250,344,000	174,656,000

a/ The annual appropriation language and the Department presentation combine the appropriation for "Forest Roads and Trails" made pursuant to 23 USC 205 and the appropriation of 10% of forest receipts for construction and maintenance of roads and trails pursuant to 16 USC 501. This merger of funds is made in order to simplify the programing, allotment, and accounting of funds at the field level. Since the accounts for these two funds are merged, it is not practicable to distribute obligations and expenditures between the two appropriations on a precise basis. The amounts shown for the "Forest Roads and Trails" appropriation are a proration based on the percentage that contract authorization used under the appropriated funds is of total available funds. Expenditure amounts for maintenance are based on all such obligations requiring cash payment during the fiscal year.

Status of Unfunded Authorizations

Unfunded contract authorizations beginning of 1968 .....	\$206,626,000
Federal-Aid Highway Act of 1966 (1969 authorization available in 1968) .....	170,000,000
Federal-Aid Highway Act of 1968 (1970 authorization available in 1969 -- proposed legislation) .....	125,000,000
Appropriation, 1968 .....	-110,000,000
Total unfunded beginning of 1969 .....	391,626,000
1969 Budget estimate (cash requirements) .....	-91,970,000
Balance to remain unfunded as of June 30, 1969 .....	<u>299,656,000</u>

Analysis of Cash Requirements

1. Unliquidated obligations, June 30, 1967 .....	\$45,440,612
2. Estimated cash requirements to finance 1968 program .....	67,180,996 a/
3. Total cash requirements by June 30, 1968 .....	112,621,608
4. Less cash on hand 1968: Balance from 1967 \$8,806,608	
Appropriation, 1968 <u>110,000,000</u>	<u>118,806,608</u>
5. Cash on hand, June 30, 1968 .....	<u>6,185,000</u>
6. Obligations in 1968 for which cash was not provided in item 2 .....	39,355,000
7. Less cash on hand, July 1, 1968 .....	<u>6,185,000</u>
	33,170,000
8. Estimated cash required to finance 1969 program .....	58,800,000 b/
9. Total cash required for 1969 .....	<u>91,970,000</u>

a/ An estimated 63% of the \$106,536,000 new obligations will require cash payments during the fiscal year.

b/ An estimated 63% of the base figure of \$93,390,000 will require cash payments during the fiscal year.









# ACQUISITION OF LANDS FOR NATIONAL FORESTS, SPECIAL ACTS

Appropriation Act, 1968, and base for 1969 .....	\$80,000
Budget estimate, 1969 .....	<u>80,000</u>

## PROJECT STATEMENT

Project and Authority	1967	1968	1969 estimate	Increase or decrease
1. Cache National Forest, Utah, Act of 5/11/38, as amended ...	\$20,000	\$20,000	\$20,000	- -
2. Uinta-Wasatch National Forests, Utah, Act of 8/26/35, as amended .....	17,094	2,000	20,000	+18,000
3. Toiyabe National Forest, Nevada, Act of 6/25/38, as amended .....	2,552	8,000	8,000	- -
4. Angeles National Forest, California, Act of 6/11/40 ...	- -	- -	32,000	+32,000
5. Sequoia National Forest, California, Act of 6/17/40 ...	16,524	- -	- -	- -
Unobligated balance reverted to National Forests Fund .....	23,830	50,000	- -	-50,000
<b>Total available or estimate ....</b>	<b>80,000</b>	<b>80,000</b>	<b>80,000</b>	<b>- -</b>

The Congress has enacted several special laws which authorize appropriation from the receipts of certain specified National Forests for the purchase of lands to minimize erosion and flood damage. Amounts appropriated and laws under which authorized are shown above.

There are critical watershed lands needing soil stabilization and vegetative cover restoration to prevent serious erosion and damaging floods within these National Forests. Land treatment measures must be applied and subsequently maintained on all lands in these areas to make corrective action fully effective. To assure full program effectiveness, the intermingled private lands must be acquired by the Federal Government. The results will be reflected in improved watershed conditions, social benefits, and development of economic strength in local communities.

During fiscal year 1967, 2,153 acres of land were purchased under the special purchase authorities applying to the Cache, Uinta and Wasatch National Forests in Utah, and the Sequoia National Forest in California.

Cache National Forest. In fiscal year 1967, funds were available from two sources for purchase of lands within the Cache National Forest in Utah.

1. The Receipts Act of May 11, 1938, as amended -- \$20,000. This is an annual appropriation.



2. The Act of July 24, 1956 -- \$200,000 was appropriated under this authority in fiscal years 1957 through 1960. These funds remain available until expended. Through fiscal year 1967, \$181,920 has been obligated from this appropriation.

These funds are used to acquire key tracts of land in the steep, rough, and highly important watershed areas lying north of the Ogden River along the Wasatch front and on Wellesville Mountain of the Cache National Forest. These are rugged mountain lands above the river valley which have been damaged and their watershed functions impaired through forest fires or overgrazing. This contributes to excessive rainfall runoff causing severe erosion. The damaged watershed lands are potential sources of floods and mudrock flows. Many tracts of land are located in the north fork of Ogden River and on the drainage of Pineview Reservoir, a Federal reclamation project. Others are within the watersheds of the city of Ogden and the other small towns along the Wasatch front. Public ownership of these lands and the subsequent restoration and protection of their vegetative cover is a highly important part of a vigorous cooperative program with the local community and agencies.

The appropriation of \$20,000 under the Act of May 11, 1938, is from receipts of the Cache National Forest. In the absence of this appropriation, the State of Utah would receive 25% of these receipts for roads and school purposes in the local counties involved. Therefore, the local counties, in effect, are contributing one-fourth of the amount of this appropriation. These appropriations are extremely important to the continuation of a vital and worthwhile program extending almost thirty years and shared in by both the local agencies and the Federal Government through the National Forests.

The 1956 Act requires that expenditures of Federal funds be matched by contributions by local agencies or people. This requirement has been met through donations of money and lands valued at \$187,000. The remainder of the contributions in the amount of \$13,000 are expected in fiscal year 1968.

Through fiscal year 1967, 30,643 acres have been approved for purchase pursuant to the Receipts Act of 1938, and 15,320 acres under the Special Act of 1956. The 1968 objective is to acquire 818 additional acres of these critical watershed lands. A similar acreage is expected to be acquired in 1969.

Uinta-Wasatch. In fiscal years 1963 through 1968, an appropriation of \$120,000 was made under the Uinta-Wasatch Receipts Act of August 26, 1935, for acquiring critical watershed lands in the American Fork Canyon watershed. However, an amount of \$18,000 will not be obligated in 1968 to comply with PL 90-218, December 18, 1967. A total of 2,456 acres has been approved for purchase through fiscal year 1967 and an estimated 400 acres will be acquired during 1969. It is estimated that it will take from two to three years to complete the necessary American Fork acquisitions.



Sequoia National Forest. In fiscal year 1967, \$32,000 was appropriated under this Act to acquire critical watershed lands. A total of 58 acres was acquired.

Toiyabe National Forest. \$8,000 was appropriated under this Act in each of fiscal years 1967 and 1968. No lands were approved for purchase in fiscal year 1967 as no desirable tracts were available at reasonable prices. The 1968 and 1969 objective is to acquire 40 acres each year.

Angeles National Forest. \$32,000 was appropriated under this Act in fiscal year 1968. However, this amount will not be obligated in 1968 to comply with PL 90-218, December 18, 1967. The objective is to acquire 200 acres during 1969.





# ACQUISITION OF LANDS FOR UINTA NATIONAL FOREST

## PROJECT STATEMENT

Project	:	1967	:	1968 estimate	:	1969 estimate
Acquisition of lands for Uinta National Forest .....	:	\$203,071	:	\$96,929	:	- -
Unobligated balance brought forward .....	:	- -	:	-96,929	:	- -
Unobligated balance carried forward .....	:	96,929	:	- -	:	- -
Total available or estimate ...	:	300,000	:	- -	:	- -

Public Law 89-226 authorized the purchase of approximately 10,000 acres of non-Federally owned land within a described part of the Uinta National Forest in Utah for the purpose of promoting the control of floods and the reduction of soil erosion through restoration of adequate vegetative cover. \$300,000 were appropriated in fiscal year 1967. The lands to be acquired are located on the South Fork of the Provo River and constitute the watershed from which the City of Provo draws its municipal water supply. The lands are intermingled with, and surrounded by, National Forest land which is now the property of the United States and acquisition of the 10,000 acres authorized by Act would consolidate the National Forest area and not only serve to halt erosion and promote flood control, but facilitate administration of the National Forest.

As of June 30, 1967, 8,847 acres have been acquired at a cost of \$203,071. It is anticipated that essentially all of the remaining lands will be acquired by the end of fiscal year 1968.



ACQUISITION OF LANDS FOR WASATCH NATIONAL FOREST

## PROJECT STATEMENT

Project	:	1967	:	1968 estimate	:	1969 estimate
Acquisition of lands for Wasatch National Forest .....	:	\$23,739	:	\$90,521	:	- -
Unobligated balance brought forward .....	:	- 114,260	:	- 90,521	:	- -
Unobligated balance carried forward .....	:	90,521	:	- -	:	- -
Total available or estimate .....	:	- -	:	- -	:	- -

The Act of September 14, 1962 (PL 87-661) provided authorization for the appropriation of \$400,000 for purchase of privately owned lands within the Wasatch National Forest in Utah. The full amount of this authorization has been appropriated with the funds remaining available until expended.

As of June 30, 1967, approximately 10,865 acres had been acquired under this authority. It is expected that a large part of the remaining lands will be acquired by the end of fiscal year 1968.



# ACQUISITION OF LANDS FOR SUPERIOR NATIONAL FOREST

## PROJECT STATEMENT

Project	1967	1968 estimate	1969 estimate
Acquisition of lands for Superior National Forest .....	\$5,521	\$45,968	- -
Unobligated balance brought forward:	-51,488	-45,968	- -
Unobligated balance carried forward:	45,968	- -	- -
Total available or estimate .....	- -	- -	- -

The Act of June 22, 1948 (PL 80-733) as amended, provided authorization for the appropriation of \$4.5 million for the purchase of lands and improvements thereon in the Boundary Waters Canoe Area, Superior National Forest, Minnesota. The full amount of this authorization has been appropriated with the funds remaining available until expended.

The legislation authorized and directed the Secretary of Agriculture to acquire any properties which in his opinion should be in Federal ownership in order to restore and preserve the wilderness character of the remaining canoe country along the Canadian boundary in Minnesota.

This purchase program is in its final stages. The remaining balance of \$45,968 is held in reserve principally for possible excess awards for purchase cases currently in condemnation proceedings.



# ACQUISITION OF LANDS FOR CACHE NATIONAL FOREST

## PROJECT STATEMENT

Project	:	1967	:	1968	:	1969
	:		:	estimate	:	estimate
Acquisition of lands for Cache National Forest .....	:	\$12	:	\$18,080	:	- -
Unobligated balance brought forward ...	:	-18,092	:	-18,080	:	- -
Unobligated balance carried forward ...	:	18,080	:	- -	:	- -
Total available or estimate .....	:	- -	:	- -	:	- -

The 1956 Appropriation Act provided \$200,000 for the acquisition of lands in the Cache National Forest pursuant to the Act of July 24, 1956 (70 Stat. 632). Obligations under this fund are in addition to the appropriation from National Forest receipts authorized by the Act of May 11, 1938 and provided in the appropriation, Acquisition of Lands for National Forests, Special Acts. Under the 1956 Act, funds appropriated must be matched by contribution of funds or land by local agencies or persons. Explanation of this program and the accomplishments thereunder are included on pages 150 and 151.









ACCESS ROADS

## PROJECT STATEMENT

Project	:	1967	:	1968	:	1969
	:		:		:	estimate
Access roads .....	:	- -:	:	- -:	:	- -
Recovery of prior year obligations ..	:	-\$3:	:	- -:	:	- -
Unobligated balance brought forward .	:	-9,274:	:	- -:	:	- -
Unobligated balance written off	:	:	:	:	:	
(31 USC 701-708) .....	:	9,277:	:	- -:	:	- -
Total available or estimate .....	:	- -:	:	- -:	:	- -

Effective with fiscal year 1964, this appropriation was eliminated and future access road purchase will be accomplished under the Forest Road and Trail appropriation.







# ASSISTANCE TO STATES FOR TREE PLANTING

Appropriation, 1968 and base for 1969 .....	\$1,000,000
Budget estimate, 1969 .....	<u>1,000,000</u>

## PROJECT STATEMENT

	:	:	:	:	:	:
		1967	1968 estimate	1969 estimate	Increase or decrease Increased :	
					Costs	Other
					(PL 90-206):	
Assistance to States	:	:	:	:	:	:
for tree planting ..	:	:	:	:	:	:
	:	\$1,002,289	\$1,044,610	\$1,000,000	- -	-\$44,610
Unobligated balance	:	:	:	:	:	:
brought forward ....	:	-46,899	-44,610	- -	- -	+44,610
Unobligated balance	:	:	:	:	:	:
carried forward ....	:	44,610	- -	- -	- -	- -
Total increased pay	:	:	:	:	:	:
and postal costs	:	:	:	:	:	:
PL 90-206 .....	:	( - - )	(5,500)	(8,200)	(2,700)	( - - )
Total available or	:	:	:	:	:	:
estimate .....	:	1,000,000	1,000,000	1,000,000	- -	- -

This program authorized under Section 401 of the Agricultural Act of 1956 (16 USC 568e) effectively assists thirty-six States in their reforestation programs. It has been responsible for directly speeding up the needed rehabilitation work on State and county forest lands and providing assistance in 14 States with their program for development of genetically-improved forest tree seed. This program is making valuable contributions to the overall reforestation goals for the Nation.

Through 1967, the program helped reforest about a half million acres. There are approved State plans for almost 1.3 million acres to be planted at an estimated Federal-State cost of \$41 million. This reforestation effort helps restore non-productive or low yielding forest lands to full production, helps stabilize eroding soils on mountain slopes, improves natural beauty of the landscape and improves rural areas.

This program employs about 10,000 rural laborers on a part-time basis to plant trees, grow the planting stock and other jobs required in carrying out the necessary cultural practices. In addition, the future economic values of the timber, at the time of harvest, will provide the pay-off in industrial raw materials, payrolls, and other economic benefits to the local communities and to national requirements for manufactured products from wood.





Following are the major benefits that have been or will be obtained from Federal appropriations when matched with State appropriations:

	: Unit	: FY 1967	: FY 1968	: FY 1969
Area planted or seeded .....	: acres	: 70,000	: 75,000	: 80,900
Volume increase in Nation's pro- duction and supply of high quality timber .....	: cu. ft.	: 9,000,000	: 9,250,000	: 9,500,000
Area of improved watershed con- servation .....	: acres	: 8,000	: 8,000	: 8,500
Area of improved wildlife habitat ....	: acres	: 4,000	: 4,000	: 5,000
Area of forestry practices contribut- ing to natural beauty .....	: acres	: 6,000	: 6,000	: 6,500
Employment resulting in rural areas ..	: man-days	: 90,000	: 92,500	: 95,000







## ADMINISTRATIVE PROVISIONS, FOREST SERVICE

### Changes in Language

Changes in language of this item are proposed as follows. New language is underscored. Deleted matter is enclosed in brackets.

1 Appropriations to the Forest Service for the current fiscal year  
2 shall be available for: (a) purchase of not to exceed two hundred  
and [fifty-nine] twenty-five passenger motor vehicles of which one  
hundred and sixty[-five] shall be for replacement only, and hire of  
such vehicles; operation and maintenance of aircraft and the  
purchase of not to exceed four for replacement only; (b) employment  
pursuant to the second sentence of section 706(a) of the Organic  
Act of 1944 (58 Stat. 742), and not to exceed \$25,000 for employment  
under 5 U.S.C. 3109; (c) uniforms, or allowances therefor, as  
authorized by law (5 U.S.C. 5901; 80 Stat. 299); (d) purchase,  
erection, and alteration of buildings and other public improvements  
(58 Stat. 742); (e) expenses of the National Forest Reservation  
Commission as authorized by section 14 of the Act of March 1, 1911  
(16 U.S.C. 514); and (f) acquisition of land and interests therein  
for sites for administrative purposes, pursuant to the Act of  
August 3, 1956 (7 U.S.C. 428a).

Except to provide materials required in or incident to research  
or experimental work where no suitable domestic product is available,  
no part of the funds appropriated to the Forest Service shall be  
expended in the purchase of twine manufactured from commodities or  
materials produced outside of the United States.

Funds appropriated under this Act shall not be used for acquisition  
of forest lands under the provisions of the Act approved March 1,  
1911, as amended (16 U.S.C. 513-519, 521), where such land is not  
within the boundaries of an established national forest or purchase  
unit.

\* \* \* \* \*

The two changes would authorize the Forest Service to purchase 225 passenger  
motor vehicles of which 160 will be replacements. The justification of this  
need follows:

### PASSENGER CARRYING VEHICLES

#### Replacements

During fiscal year 1969, it is proposed to replace 160 passenger carrying  
vehicles. Of these, 155 will meet replacement standards and 5 will require  
replacement because of accidents or excessive maintenance costs.



Dependability of passenger carrying vehicles is an important factor in keeping work programs on schedule and in meeting emergencies. Vehicle breakdowns while on field travel cause disruptions and delays in field work as well as loss of effective work time of employees. The continued use of over-age equipment is undesirable from a safety standpoint since most of it is operated over rough, narrow, winding roads in mountainous country under adverse conditions. This use generally results in excessive operating and repair expenses when vehicles reach or exceed replacement standards.

In order to maintain passenger carrying vehicles in a safe and satisfactory operating condition, it is the policy of the Forest Service to schedule periodic preventive maintenance inspections, services, and tune-ups to reduce the necessity for costly repairs and major overhauls, and to minimize lost time resulting from field breakdowns.

It is desirable to maintain a reasonable balance in the age class of the passenger vehicle inventory. The age class distribution is based upon conforming with replacement standards which recognize that some units will be retired under the age standard and others under the use standard. Prescribed replacement standards, although applicable, are not always appropriate for all Forest Service vehicles because of the wide range of operating conditions and the comparatively short field season in many of the National Forests at higher elevations. Decision on replacement of passenger vehicles which reach replacement age is based on an appraisal of each unit. This involves a review of the history record combined with a mechanical inspection of the vehicle's condition and repair liability. When such appraisal indicates that the vehicle is satisfactory for further service without unreasonable repair expenditures, it is retained and assigned to lighter work, even though such action tends to upset the age standards for the fleet inventory.

The vehicles selected for replacement are those which cannot be operated another season without excessive repair expense. They are unsatisfactory for further use both as to safety and mechanical condition. The replacement authorization requested is within the normal annual replacement standards prescribed by the General Services Administration.

Essentially all passenger carrying vehicles are pooled for use by all activities with replacement of pooled units financed from a Working Capital Fund. All appropriations reimburse this fund in ratio to use of vehicles on activities financed by the respective appropriations.

None of the replacements requested will be assigned to areas served or scheduled to be served by Inter-Agency Pools.

#### Additions

It is proposed to purchase 65 additional passenger carrying vehicles for the following purposes:





- (1) 40 to be used as replacements or in lieu of additional one-half ton pickups and carryalls which are more expensive to operate.

Sedans or station wagons cost less to operate and maintain than a truck. During fiscal year 1968, the Forest Service is replacing 69 light trucks, such as carryalls, pickups, panels, and sedan delivery trucks, with sedans and station wagons. The total estimated cost savings is \$25,812 per year. The substitution of 40 passenger cars for light trucks in fiscal year 1969 would result in an additional saving of about \$15,000 each year.

- (2) 25 to meet expanding activities in research, timber sales, public use of recreational facilities, fire protection, and other land management activities.

These increasing needs are being met in some areas through greater use of Inter-Agency Motor Pool vehicles. These pools, however, serve only very small parts of the total land area administered by the Forest Service; therefore, increasing requirements for passenger carrying vehicle transportation in several areas cannot be fully met except through purchase of additional units. None of the additions requested will be assigned to areas served or scheduled to be served by Inter-Agency Motor Pools.

The Forest Service analyzes current work plans and program in determining its overall passenger carrying vehicle requirements. This analysis includes a careful study of the number of vehicles needed at each field station, using as a guiding principle the ownership of only the minimum number of dependable units required to serve programs for which funds are budgeted. Also, it is Forest Service policy to utilize Inter-Agency Motor Pools or commercial car rental services to the fullest practicable extent. Passenger car use is restricted and is integrated with various activities so as to attain good utilization of all vehicles.

Additions are financed from program funds in direct relationship to the anticipated use of the equipment. Distribution of costs to appropriations is based on analysis of use of the equipment fleet for the past three years and the estimated use for the budget year.

#### Number of Vehicles

The Forest Service had 710 passenger carrying vehicles at the start of fiscal year 1968. It will add 94 units during the year, making a total of 804 units available at the start of fiscal year 1969, excluding possible transfers to other agencies. It is proposed that the total number of passenger carrying vehicles be increased to 869 by the end of fiscal year 1969.



As of June 30, 1967, the age and mileage classes of the passenger carrying vehicles on hand, exclusive of two buses, were:

<u>Age Data</u>	
<u>Year</u>	<u>No. of Vehicles</u>
1962 and older .....	143
1963 .....	150
1964 .....	132
1965 .....	122
1966 .....	103
1967 .....	<u>64</u>
Total .....	714*

<u>Mileage Data</u>	
<u>Miles</u>	<u>No. of Vehicles</u>
60,000 and over .....	280
50,000 to 59,999 .....	106
40,000 to 49,999 .....	104
30,000 to 39,999 .....	90
20,000 to 29,999 .....	55
10,000 to 19,999 .....	18
0 to 9,999 .....	<u>61</u>
Total .....	714*

\*Includes 63 vehicles on hand awaiting disposal.

#### Use of Vehicles

Passenger carrying vehicles are used by:

- (1) Forest officers in the protection, utilization, management, and development of the National Forests and land utilization projects and in the program for control of forest pests.
- (2) Research technicians on experimental forests and ranges, on field research projects and forest surveys.
- (3) Foresters engaged in carrying out the laws providing for State and private forestry cooperation.
- (4) Regional office field-going administrative personnel in performing, directing, and inspecting field work.

The Forest Service is essentially a field organization and its passenger carrying vehicles are located mainly at regional, National Forest, and ranger district headquarters, and experimental forests and ranges. There are over 225 million acres within the exterior boundaries of the National Forests.



About 472 million acres of State and private forest land are included within the areas which benefit from Federal participation in the cooperative forest program. Much of this area is without common carrier service, and most forest areas and research centers are remote from commercial travel routes, requiring extensive use of motor vehicles as a means of transportation. The major portion of transportation needs, particularly at forest regional and supervisor levels and at other larger headquarters involves multiple passenger use and can be more expeditiously and economically met by use of sedans and station wagons than by other types of vehicles.

### AIRCRAFT

#### Replacement of Aircraft

The 1969 estimates propose replacement of four aircraft by purchase and four by transfer from other agencies as available. The Forest Service currently has 57 aircraft:

- 1 Helicopter
- 12 Single-engine reconnaissance and transport airplanes
- 14 Light twin-engine reconnaissance and transport airplanes
- 13 Medium and heavy cargo and transport airplanes (9 medium, 4 heavy)
- 17 T-34B lead airplanes (2-place scout)

The helicopter is used for experimental development of techniques and equipment for direct tactical suppression of forest fires and in training Forest Service personnel in tactical use of helicopters. Current assignments include projects for night operations of helicopters on fires and development of an efficient suspended bucket for dropping retardants.

The multipurpose reconnaissance and transport airplanes are used primarily to transport smokejumpers, firefighters, administrative personnel, equipment and supplies to remote and inaccessible areas where commercial services are inadequate or not available for protection and suppression of forest fires. Other use is to locate and survey timber stand and vegetation conditions such as insect infestations, blowdown, diseased areas, undesirable species, and to appraise resources and damage and evaluate effectiveness of control.

The T-34B lead airplanes are primarily single-purpose military model aircraft used by air tanker bosses to direct and control the dropping of retardants on forest fires by contract air tankers.

One light twin-engine airplane is modified, equipped, and used primarily for fire mapping with infrared equipment in low visibility of smoke and at night. Another important use is lead plane work replacing some single-purpose T-34's.

The replacements requested will be primarily medium twin-engine airplanes. They will be utility airplanes that may be used for several purposes but



primarily for the development project on high level infrared detection of fires, operational infrared mapping of fire boundaries, and providing essential service in dropping smokejumpers and paracargo. The airplanes will be new, standard manufacture airplanes to upgrade with greater efficiency and utility some of the old military surplus aircraft currently providing essential services. These replacements will provide more effective operations with greater safety margin. The Forest Service aircraft are operated to a large extent over rough, mountainous terrain in turbulent air conditions, and from unimproved landing fields.

Medium and heavy cargo and transport airplanes are needed to meet requirements as a result of rapidly diminishing number available from supplemental air carriers and other commercial sources. The transport type may be obtained and other aircraft currently in use be replaced as newer or more suitable models and types become available from military services as excess property. Procurement would be on transfer without reimbursement and would not increase the total beyond 57 aircraft. When aircraft are partially or completely destroyed in a crash accident, they may be replaced out of any available funds.









ROADS AND TRAILS FOR STATES, NATIONAL FORESTS FUND

Appropriation, 1968 .....	\$17,566,480
Budget estimate, 1969 .....	<u>18,800,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1968) .....	<u>+1,233,520</u>

The permanent appropriation of 10% of National Forest receipts pursuant to the Act of March 4, 1913 (16 USC 501) is transferred to and merged with the annual appropriation for Forest Roads and Trails. The explanation of the use of these funds is included in the justification for that appropriation item.



# EXPENSES, BRUSH DISPOSAL

Appropriation, 1968 and base for 1969 .....	\$10,300,000
Budget estimate, 1969 .....	<u>10,400,000</u>
Increase .....	<u>+100,000</u>

## PROJECT STATEMENT

Project	1967	1968 estimate	1969 estimate	Increase or decrease	
				Increased	
				Costs	Other
				(PL 90-206)	
Brush disposal .....	\$8,893,844	\$9,789,000	\$9,962,000	+\$72,000	+\$101,000
Unobligated balance					
brought forward ..	-11,178,168	-12,159,004	-12,670,004	- -	-511,000
Unobligated balance					
carried forward ..	12,159,004	12,670,004	13,108,004	- -	+438,000
Total increased pay					
and postal costs					
PL 90-206 .....	(- -)	(189,000)	(262,000)	(+72,000)	(+1,000)
Total available or					
estimate .....	9,874,680	10,300,000	10,400,000	+72,000	+28,000

Timber cutting normally increases the fire hazard because of dry fuel increase in the form of logging slash. This slash may also contribute to the buildup of insect populations, increase certain disease infestations, and cause damage to stream channels.

National Forest timber sale contracts require treatment of debris from cutting operations or deposit of funds to pay for the work. When economical and expedient the work is performed by the timber purchaser. If it is not feasible for the purchaser to do the work, it is done by the Government using deposits made by the timber purchaser to cover costs of the work as authorized under section 6 of the Act of April 24, 1950 (16 USC 490).

The effect of timber cutting and the manner of treating slash vary widely among regions. In the three eastern regions, volume cut per acre is relatively low, utilization is high, and generally, humid atmospheric conditions result in rapid decomposition of debris so little slash disposal work is necessary. An exception occurs in some sales where a heavier cut per acre is made, such as the jack pine stands of Minnesota. In such areas, slash is broken up and mixed with mineral soil by disking with heavy equipment. This reduces the hazard and provides a good seedbed to aid regeneration. Treatment of slash to prevent insect epidemics is sometimes necessary in these areas.

In contrast, the cost of slash abatement on most sale areas of the West is high. High volumes per acre generally produce heavy slash. Long dry periods with much lightning and man-caused fire risk result in extremely hazardous fire potential. The warm, humid condition necessary for rapid slash deterioration seldom occurs so more intense slash disposal is required. Treatment varies greatly with different methods of cutting. Clear-cut areas are broadcast burned. In selectively cut areas, debris may be piled for burning over the whole area or in strips which serve as firebreaks.



While slash disposal follows general prescriptions within regions, individual needs of each sale offering are planned and appraised prior to advertisement and appropriate specific requirements are incorporated into each timber sale contract. In each instance the method used is the one which will attain adequate protection of the area at the least expense. In some instances adequate protection from fire is attained by providing additional protection until the slash hazard reverts to near normal. Logging debris which may move into water courses under these conditions must be removed. Greater intensity of fire protection for several years and occasional stream clearance may be less costly than complete slash disposal immediately after cutting. In such cases Brush Disposal funds are used to provide the needed manpower and facilities.





# FOREST FIRE PREVENTION

Appropriation, 1968 and base for 1969 .....	\$45,000
Budget estimate, 1969 .....	<u>60,000</u>
Increase .....	<u>+15,000</u>

## PROJECT STATEMENT

Project				<u>Increase or decrease</u>	
	1967	1968 estimate	1969 estimate	Increased	
				Costs	Other
				(PL 90-206)	
Forest fire prevention .....	\$37,248	\$45,000	\$60,000	- -	+\$15,000
Unobligated balance brought forward .....	-64,195	-69,126	-69,126	- -	- -
Unobligated balance carried forward .....	69,126	69,126	69,126	- -	- -
Total increased pay and postal costs PL 90-206 .....	(- -)	(600)	(840)	(240)	- -
Total available or estimate ...	42,179	45,000	60,000	- -	+15,000

The purpose of the project is public education on the need for the prevention of man-caused wildfires on all the Nation's forests and rangelands. Its goal is the further reduction of man-caused forest fires on all ownerships to the point where their impact on natural resource management programs is negligible.

This project is accomplishing its purpose in two ways:

1. By the dissemination to the public of Smokey Bear's forest fire prevention messages on commercial products licensed by the Chief of the Forest Service.
2. By support of the Smokey Bear Junior Forest Rangers and of the Smokey Bear Awards program through the contribution of fees and royalties by licensees.

The Smokey Bear licensing program is an important part of the Cooperative Forest Fire Prevention Campaign which has been in effect for 26 years. The campaign itself has been conducted each year since 1942 as a cooperative project of the State Foresters and the Forest Service, United States Department of Agriculture, and is a public service program of the Advertising Council. The campaign utilizes the free public service resources of the various national advertising channels such as car cards, poster display systems, radio and television networks, and magazine and newspaper allocation plans in developing public cooperation in the prevention of man-caused forest fires. Since 1945, this campaign has been built around Smokey Bear who has become recognized and accepted by the public as a nationwide symbol of forest fire prevention.



Under authorization of the Act of May 23, 1952 (18 USC 711), the Secretary of Agriculture has issued rules and regulations governing the licensing program. These licenses specify payment of royalties (usually 5%) and set up certain controls for administering the program and collecting the royalties including advance deposits to protect the Government's interest. Such collections, along with appropriated funds, are used to finance the Cooperative Forest Fire Prevention Campaign.

The licensing program provides less than 8% of the total funds required for the Cooperative Forest Fire Prevention Program.

#### Examples of Recent Accomplishments (See Figure 35.)

Full conversion to color films in the 1967 television kits increased the public service use of forest fire prevention messages. To do this more than doubled the cost of each kit, but the effectiveness and competitiveness of the Smokey Bear messages were greatly improved. A new 3-1/2 minute color film, "SMOKEY AND HIS FRIENDS," was completed. Nearly 200 television broadcasters requested prints.

The first comprehensive independent study of public understanding of and reactions to the Smokey Bear campaign and forest fires was conducted under the supervision of Smokey's volunteer advertising agency, Foote, Cone & Belding, during fiscal year 1968. This study will provide reliable indicators to guide program direction and emphasis in the years ahead.

In June, July, and August of 1967, nearly 600 daily newspapers cooperated in carrying a series of 13 specially-designed forest fire prevention messages. This project resulted in the extra donation of advertising space greater in value than the entire fiscal year 1968 budget for the Smokey Bear program.



## TOP FIRE PREVENTION AWARDS



Smokey Bear congratulates winners as they accept GOLDEN SMOKEY statuettes from Assistant Secretary of Agriculture John A. Baker (on right). Accepting for Ideal Toy Corporation was (on left) Ben Michtom, Chairman of the Board, and for the National Zoological Park, Dr. Theodore Reed, Director. (Washington D.C., 4/25/67)

## SIXTY-FOOT SMOKEY FLIES



Smokey Bear made his second appearance in Macy's Thanksgiving Day Parade. A nationwide television audience of many millions got Smokey's message as two networks covered the event.

## SMOKEY BEAR PRODUCTS



A few of the educational Smokey Bear items produced under license from the Forest Service. Licensees paid in more than \$42,000 in royalties to the government in fiscal year 1967.

## SMOKEY IN 1968 ROSE PARADE



For the 6th time in 9 years, Smokey rode in the Pasadena Rose Parade on New Year's Day 1968. Estimated audience (live and on television) was more than 100 million.





# RESTORATION OF FOREST LANDS AND IMPROVEMENTS

Appropriation, 1968 and base for 1969 ..... \$25,000  
Budget estimate, 1969 ..... 25,000

## PROJECT STATEMENT

Project	:	1967	:	1968 estimate	:	1969 estimate	:	Increase or decrease
Restoration of forest lands and improvements .....	:	\$11,928:	:	\$25,000:	:	\$25,000:	:	- -
Unobligated balance brought forward .....	:	- 14,979:	:	- 12,594:	:	- 12,594:	:	- -
Unobligated balance carried forward .....	:	12,594:	:	12,594:	:	12,594:	:	- -
Total available or estimate ...	:	9,543:	:	25,000:	:	25,000:	:	- -

Recoveries from cash bonds or forfeitures under surety bonds by permittees or timber purchasers, who fail to complete performance, are used to complete improvement, protection, or rehabilitation work on lands under Forest Service administration. Funds received as settlement of a claim are used for improvement, protection, or rehabilitation made necessary by the action which led to the cash settlement (Act of June 20, 1958, 16 USC 579c).





PAYMENT TO MINNESOTA (COOK, LAKE, AND ST. LOUIS COUNTIES)  
FROM THE NATIONAL FORESTS FUND

Appropriation, 1968 and base for 1969 .....	\$145,448
Budget estimate, 1969 .....	145,000
Decrease .....	<u>-448</u>

PROJECT STATEMENT

Project	:	1967	: 1968 : estimate	: 1969 : estimate	: Increase or : decrease
Payment to Minnesota from the National	:	:	:	:	:
Forests Fund (total available or	:	:	:	:	:
estimate) .....	:	\$144,815	\$145,448	\$145,000	-\$448
	:	:	:	:	:

The Act of June 22, 1948, as amended (16 USC 577c-577h) provides that the Secretary of the Treasury, upon certification of the Secretary of Agriculture, shall pay to the State of Minnesota at the close of each fiscal year an amount equivalent to three-fourths of one percent of the fair appraised value of certain National Forest lands in the counties of Cook, Lake, and St. Louis situated within the Superior National Forest. The Act further provides that payment to the State shall be distributed to each of these counties in conformity with the fair appraised value of such National Forest lands in each county.



PAYMENTS TO COUNTIES, NATIONAL GRASSLANDS

Appropriation, 1968 and base for 1969 .....	\$450,000
Budget estimate, 1969 .....	<u>450,000</u>

PROJECT STATEMENT

Project	:	:	1968	:	1969	:	Increase or
	:	1967	:	estimate	:	estimate	decrease
Payment to counties (total available	:	:	:	:	:	:	:
or estimate) .....	:	\$451,432:	:	\$450,000:	:	\$450,000:	- -
	:	:	:	:	:	:	:

At the end of each calendar year, 25% of the revenues from use of submarginal lands are paid to counties under the provisions of Title III of the Bankhead-Jones Farm Tenant Act, approved July 22, 1937 (7 USC 1012). Payments are made on the provision that they are used for school or road purposes, or both.



# PAYMENTS TO SCHOOL FUNDS, ARIZONA AND NEW MEXICO

Appropriation, 1968 and base for 1969 .....	\$106,086
Budget estimate, 1969 .....	<u>110,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1968) .....	<u>+3,914</u>

## PROJECT STATEMENT

Project	:	1967	:	1968 estimate	:	1969 estimate	:	Increase or decrease
Payments to school funds (total available or estimate) .....	:	\$102,931	:	\$106,086	:	\$110,000	:	+\$3,914

Under provisions of the Act of June 20, 1910 (36 Stat. 562, 573) certain areas within National Forests were granted to the States for school purposes. The percentage that these lands are of the total National Forest area within the State is used in determining payments to the States. The receipts from all National Forest land within the State are used as the basis for applying the percentage. For example, if total receipts for the State are \$100,000 and if 10% of lands are in the "granted for school purposes" category, the payment to the State would be \$10,000. The amounts so paid are deducted from the net receipts before computing the 25% payments to States.

As soon after the close of the fiscal year as the receipts from National Forests and the area of school lands in the States of Arizona and New Mexico are determined, the payments are made to the States. Payments in fiscal year 1968 to Arizona were \$105,713 and to New Mexico \$373.



PAYMENTS TO STATES, NATIONAL FORESTS FUND

Appropriation, 1968 and base for 1969 .....	\$43,912,243
Budget estimate, 1969 .....	<u>47,020,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1968) .....	<u>+3,107,757</u>

PROJECT STATEMENT

Project	:	1967	:	1968 estimate	:	1969 estimate	:	Increase or decrease
Payments to States (total	:	:	:	:	:	:	:	:
available or estimate) .	:	\$41,942,319	:	\$43,912,243	:	\$47,020,000	:	+\$3,107,757
	:	:	:	:	:	:	:	:

The Act of May 23, 1908, as amended (16 USC 500) requires, with a few exceptions, that 25% of all money received from the National Forests during any fiscal year be paid to the States in which the forests are located, for the benefit of public schools and public roads of the county or counties in which such National Forests are situated. The amount of this appropriation varies each year in direct proportion to National Forest receipts during the previous fiscal year.

The amounts set aside from receipts collected for the sale of National Forest timber, grazing, special use permits, power, mineral leases, and admission and user fees, before the 25% is applied are listed below:

1. Payment to the State of Minnesota covering certain National Forest lands in the Counties of Cook, Lake, and St. Louis situated within the Superior National Forest is made under the terms of the Act of June 22, 1948, as amended (16 USC 577c-577h). Receipts collected from the areas covered by this Act are excluded when the 25% payment to the State of Minnesota is computed.
2. For lands in certain counties in Utah, Nevada, and California, the States receive 25% of receipts only after funds, if made available by Congress, have been set aside for the acquisition of National Forest lands within the specified National Forests under the terms of special acts authorizing appropriations from forest receipts for this purpose.
3. Payments to the States of Arizona and New Mexico under the provisions of the Act of June 20, 1910 (36 Stat. 562, 573), of shares of the gross receipts from the National Forests in those States which are proportionate to the areas of land granted to the States for school purposes within the National Forests.









## WORKING CAPITAL FUND

The Working Capital Fund was established by the Act of August 3, 1956 (16 USC 579b), as amended by the Act of October 23, 1962, 76 Stat. 1157. It is a self-sustaining revolving fund which provides services to National Forests, experiment stations, and when necessary, to other Federal agencies, and as provided by law to State and private agencies and persons who co-operate with the Forest Service in fire control and other authorized programs.

The Working Capital Fund requires no cash appropriation. Initially, its assets were purchased by regular Forest Service appropriations and donated to the fund. Where expansion of Working Capital Fund operations is required it generally is financed prorata by benefiting Forest Service appropriations and the resulting assets are donated to the fund. In some instances assets have been obtained without cost to Forest Service appropriations or the Working Capital Fund. In other instances, the expansion was financed by the Working Capital Fund.

The following services were provided by the Working Capital Fund in fiscal year 1967:

1. Equipment Service: This service owns, operates, maintains, and replaces approximately 13,000 pieces of common use motor driven and similar equipment. This equipment is rented to a total of 166 proclaimed National Forests, experiment stations and other units, and in some cases, to other agencies, at rates which recover the cost of operation, repair and maintenance, management, and depreciation. The rates also include an increment which provides additional cash which when added to depreciation earnings and the residual value of equipment provides sufficient funds to replace the equipment. This service operates 97 repair shops.
2. Aircraft Service: This service operates and maintains 57 Forest Service owned aircraft used in fire surveillance and suppression and in other Forest Service programs. The aircraft are based at 11 locations and are rented to National Forests, experiment stations, and in some cases, to other agencies, at rates which recover the cost of operation, maintenance, repair, and improvements in the airworthiness of the aircraft. Replacement costs and the costs of additional aircraft are financed prorata by benefiting Forest Service appropriations. This service operates three aircraft maintenance shops.
3. Supply Service: This service operates the following common services:
  - (a) Central Supply: This service is centralized at four locations for procurement, warehousing, and supply of common use items, such as work project tools, provisions, and supplies, which are issued and sold to National Forests, experiment stations, and others at prices which recover cost.



- (b) Photo reproduction: Five photo reproduction laboratories store, reproduce, and supply aerial photographs, aerial maps, and other photographs of National Forest lands. The photographic reproductions are sold to National Forests, experiment stations, and others at cost.
- (c) Sign Shop: These include 12 small shops which manufacture and supply special signs for the National Forests for use in regulating traffic and as information to the public and other users of the National Forests. The signs are sold to National Forests and experiment stations at cost.
- (d) Subsistence: These are 47 facilities which prepare and serve meals at cost to Forest Service work crews working in remote areas where adequate public restaurant facilities are not available.
- (e) Cribbing: This facility is located on the Angeles National Forest, California, to manufacture special concrete structural material used in embankments for erosion control purposes along access roads in the National Forests. This material is sold to National Forests at prices which recover costs.
4. Nursery Service: This service operates 14 forest tree nurseries and cold storage facilities for storage of tree and seed stock and one seed extractory. Tree seed is procured, cleaned, bagged, and stored in refrigerated facilities. Tree and seed stock are sold to National Forests, States, and other Federal agencies at cost.

Volume of Business for the Various Major Activities  
of the Working Capital Fund

(In thousands)

	<u>Actual</u> <u>1967</u>	<u>Estimated</u> <u>1968</u>	<u>Estimated</u> <u>1969</u>
Equipment service .....	\$18,592	\$18,926	\$16,154
Aircraft service .....	641	662	665
Supply service .....	4,347	2,790	2,656
Nursery service .....	<u>2,557</u>	<u>2,572</u>	<u>2,525</u>
Totals .....	<u>26,137</u>	<u>24,950</u>	<u>22,000</u>



The following is a tabulation pertaining to the capital and earnings of the Working Capital Fund:

Analysis of Capital and Earnings

	Actual through <u>June 30, 1967</u>	Estimated through <u>June 30, 1968</u>	Estimated through <u>June 30, 1969</u>
	(In thousands)		
Value of assets donated to the fund .....	\$30,988	\$32,039	\$33,139
Value of assets acquired from earnings .....	5,750	6,500	7,500
Earnings reserved for future acquisition of assets .....	3,135	3,500	2,800
Balance of earnings .....	<u>58</u>	<u>68</u>	<u>68</u>
Total Capital and Earnings ...	<u>39,931</u>	<u>42,107</u>	<u>43,507</u>









## COOPERATIVE WORK, FOREST SERVICE (TRUST FUND)

Contributions are received from cooperators, including counties, States, timber sale operators, individuals, and associations, and are expended by the Forest Service in accordance with the terms of the applicable cooperative agreements. The work consists of protection and improvement of the National Forests, work performed for National Forest users, and forest investigations and protection, reforestation, and administration of private forest lands.

The major programs conducted under this account are described below in terms of the projects reflected in the statement at the end of this section.

1. Construction and Maintenance of Roads and Trails, and
2. Construction and Maintenance of Other Improvements.

Under the Acts of June 30, 1914 (16 USC 498) and March 3, 1925, April 24, 1950 (16 USC 572) and October 13, 1964 (16 USC 537) deposits for cooperative work are accepted from State and local government agencies, associations, Federal timber purchasers, users of roads, and others for the construction and maintenance of roads, trails, and other improvements and for performing work which is the National Forest users' responsibility, this method of performance of the work being of mutual benefit or of benefit to the public at large. Co-operative deposits received for wildlife habitat improvement for States from their hunting and fishing fees are included in this activity.

3. Protection of National Forest and Adjacent Private Lands. The Act of June 30, 1914 (16 USC 498) authorizes the acceptance of deposits for the protection of the National Forests and the Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572), authorizes the acceptance of contributions for the protection of private lands in or near the National Forests. The major portion of the obligations is for the protection of private lands from fire. This arrangement helps both parties since there are millions of acres of private forest land intermingled with Federal ownership on the National Forests. The lands in private ownership are usually in small tracts. It would be uneconomical for the owner to set up a fire control organization for the protection of his land. The advantage to the Government is that in many cases it would be necessary to suppress the fires on the private land without reimbursement in order to protect the adjoining Federal land.
4. Sale Area Betterment (including reforestation). Section 3 of the Act of June 9, 1930 (16 USC 576b) provides for deposits of funds by timber sale purchasers to cover the cost of reforestation and special cultural measures to improve the future stand of timber on the areas cutover by the purchaser. Deposits in fiscal year 1967 under this authorization totaled \$23.4 million. Fiscal year 1967 accomplishments under this program are reported under the Forest land management subappropriation along with accomplishments for reforestation and stand improvement for that subappropriation.



5. Scaling. Under provisions of the Act of April 24, 1950 (16 USC 572) and of Section 210 of the Act of September 21, 1944 (16 USC 572a) acceptance of deposits from timber purchasers for cooperative scaling service is authorized. Such arrangements are established only when requested by the operator and when the operator pays the extra cost of such services, either in advance or through reimbursement under appropriate payment guarantees.
6. Research Investigations. The Acts of June 30, 1914 (16 USC 498) and May 22, 1928 (16 USC 581i-1) authorize the acceptance of deposits for forestry research. Deposits are received from State and other public agencies, and from industrial, association, and other private agencies to finance research projects of mutual interest and benefit to both parties. The deposits may be made either in a single sum or on a continuing basis, and may either partially or wholly cover the cost of the research. The cooperative research projects may involve any aspect of forestry and vary widely as to scope and duration. A very common example of such cooperation is for a State to make a deposit to the Cooperative work fund in order to intensify or to speed up completion of a comprehensive survey of the forest resources of the State. Other examples are State contributions toward forest fire research. The results of such cooperative investigations are made available to the general public as well as to the depositor.
7. Administration of Private Lands. The Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572) authorizes the acceptance of contributions for the management of private lands. These contributions are made by private owners having land intermingled with or adjacent to National Forests who wish these lands managed in accordance with good forest management practices. Their holdings are usually too small to warrant the employment of professional foresters to administer such tracts. The advantages to the Government include the avoidance of possible high fire hazard areas resulting from improper cutting practices, the elimination of the necessity of precisely marking the boundaries of the private land, and additional private forest land handled under proper forest practices.
8. Reforestation (private lands). The Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572) authorizes the acceptance of contributions for reforestation of private lands situated within or near a National Forest. This work is limited to areas of private land within a planting project on the National Forests or to areas in which certain civic and other public-spirited organizations have taken an interest.
9. Statement on Utilization of Funds. Following is a statement of funds received and obligated and balances available by major activities:















